# The PHOTOFACT® Servicer

SET 548 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ SEPT. 1961

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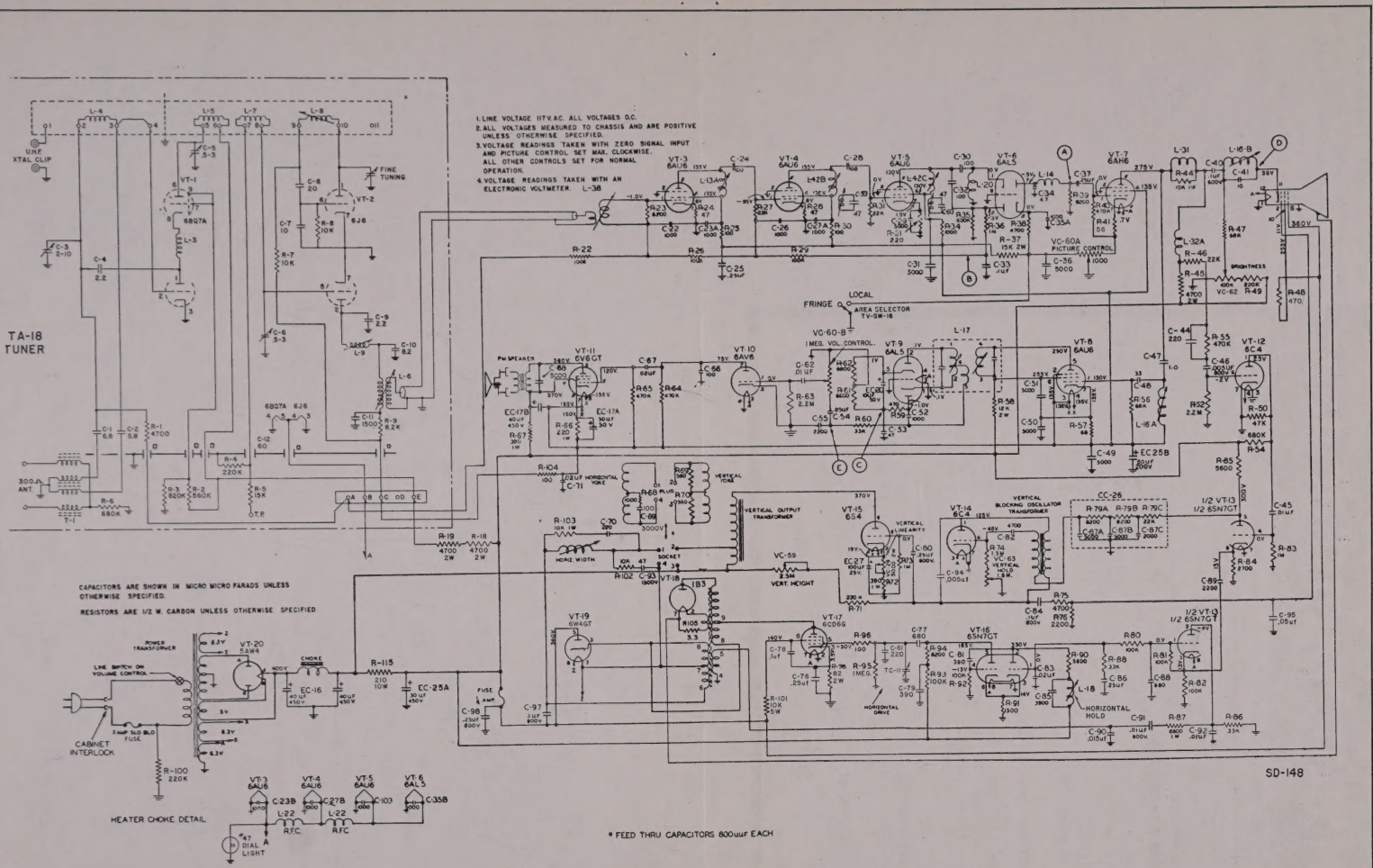
This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

**IN THIS ISSUE OF THE SERVICER:**

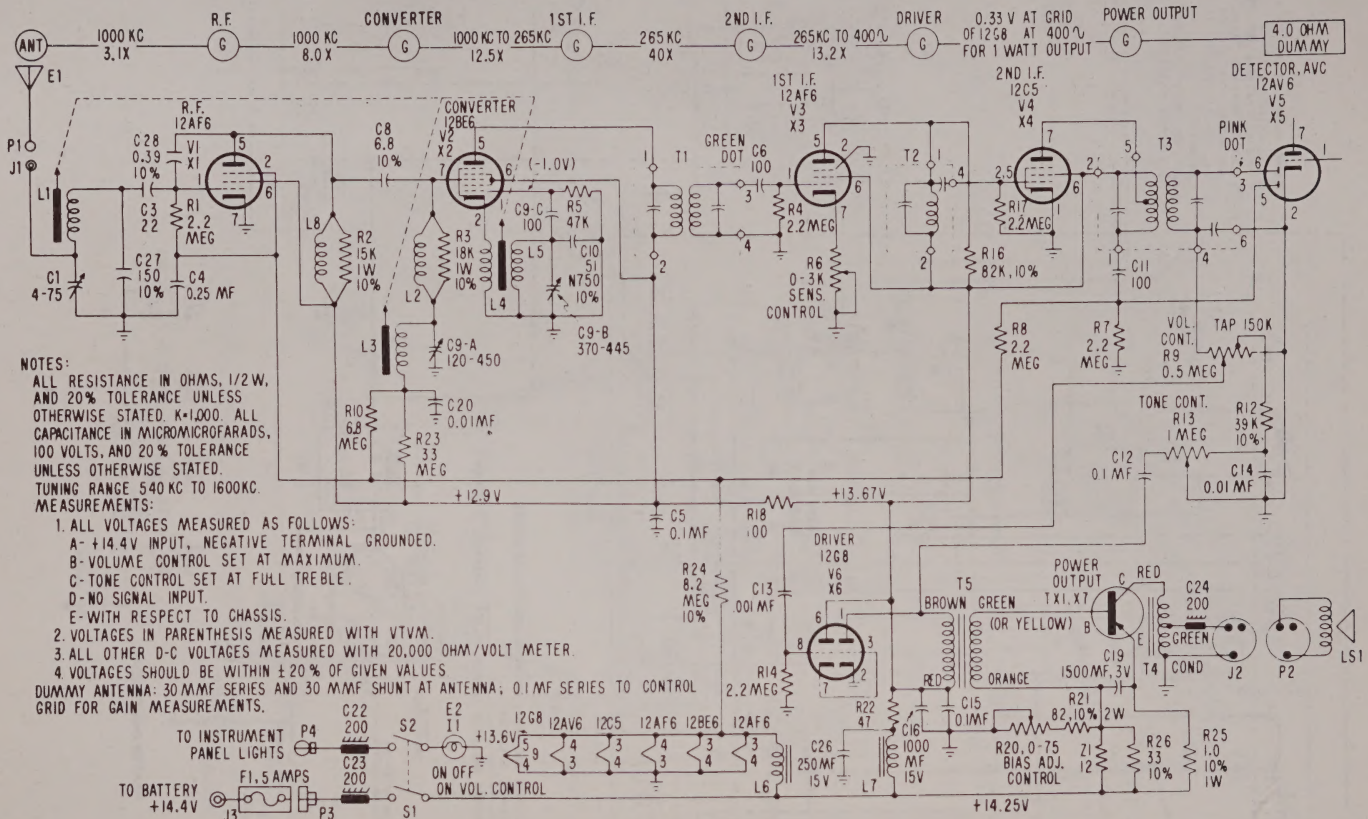
Ford Model 65 BF
( FDR-18806-C )

Trav-Ler Chassis
412F4, 412F5


TA-18 TUNER
1. LINE VOLTAGE 117 V.A.C. ALL VOLTAGES D.C.
2. ALL VOLTAGES MEASURED TO CHASSIS AND ARE POSITIVE UNLESS OTHERWISE SPECIFIED.
3. VOLTAGE READINGS TAKEN WITH ZERO SIGNAL INPUT AND PICTURE CONTROL SET MAX. CLOCKWISE. ALL OTHER CONTROLS SET FOR NORMAL OPERATION.
4. VOLTAGE READINGS TAKEN WITH AN ELECTRONIC VOLTMETER. L-38
CAPACITORS ARE SHOWN IN MICRO MICRO FARADS UNLESS OTHERWISE SPECIFIED.
RESISTORS ARE 1/2 W. CARBON UNLESS OTHERWISE SPECIFIED
HEATER CHOKE DETAIL
* FEED THRU CAPACITORS 600uuf EACH
SD-148

TRAV-LER CHASSIS 412F4, 412F5

Schematic Diagram Courtesy of Trav-Ler Radio Corporation




NOTES:
ALL RESISTANCE IN OHMS, 1/2 W, AND 20% TOLERANCE UNLESS OTHERWISE STATED. K=1,000. ALL CAPACITANCE IN MICROMICROFARADS, 100 VOLTS, AND 20% TOLERANCE UNLESS OTHERWISE STATED.
TUNING RANGE 540 KC TO 1600KC.
MEASUREMENTS:
1. ALL VOLTAGES MEASURED AS FOLLOWS:
   A- +14.4V INPUT, NEGATIVE TERMINAL GROUNDED.
   B- VOLUME CONTROL SET AT MAXIMUM.
   C- TONE CONTROL SET AT FULL TREBLE.
   D- NO SIGNAL INPUT.
   E- WITH RESPECT TO CHASSIS.
2. VOLTAGES IN PARENTHESIS MEASURED WITH VTVM.
3. ALL OTHER D-C VOLTAGES MEASURED WITH 20,000 OHM/VOLT METER.
4. VOLTAGES SHOULD BE WITHIN ± 20% OF GIVEN VALUES
DUMMY ANTENNA: 30 MMF SERIES AND 30 MMF SHUNT AT ANTENNA; 0.1 MF SERIES TO CONTROL GRID FOR GAIN MEASUREMENTS.

## FORD MODEL 65 BF ( FDR-18806-C )

Schematic Diagram Courtesy of Bendix Radio, Division of Bendix Aviation Corp.

PHOTOFACT® Folder



## INDEX

A cumulative index is included as a part of this Folder. Upon finding that a new tube is not listed on the roll chart of a tester covered in this service, refer to the latest Tube Tester Data Index to determine in which PHOTOFACT Set the data was published. If listed, reference to that Folder will provide the necessary data.

| TUBE TYPES | JACKSON 598, 648, and 658 See PHOTOFACT Set No. | TUBE TYPES | JACKSON 598, 648, and 658 See PHOTOFACT Set No. | TUBE TYPES | JACKSON 598, 648, and 658 See PHOTOFACT Set No. |
|---|---|---|---|---|---|
| 2CW4♦ | 544 | 6D10♦ | 544 | 10EM7 | 532 |
| 2EV5 | 512 | 6EQ7 | 516 | 10HF8 | 536 |
| 2FQ5 | 524 | 6ES8 | 524† | 12BZ6 | 524† |
| 2FY5 | 512 | 6ET7 | 544 | 12DY8 | 516 |
| 2GK5 | 548 | 6FA7 | 524 | 12GW6 | 528 |
| 3AW3 | 548 | 6FG7 | 516 | 13EM7 | 512 |
| 3ES5 | 524 | 6FJ7♦ | 548 | 15EA7 | 528 |
| 3EV5 | 512 | 6FQ5 | 512 | 17DM4 | 532 |
| 4AV6 | 532 | 6FQ7 | 532 | 17GW6 | 528 |
| 4ES8 | 524 | 6FS5 | 520 | 19EZ8 | 524 |
| 4GS8 | 516 | 6FW5 | 520 | 19HV8 | 536 |
| 5DJ4 | 528 | 6GK5 | 544 | 20EZ7 | 548 |
| 5EW6 | 536 | 6GW6 | 528 | 25DK4 | 540 |
| 5FG7 | 544 | 6GW8 | 528 | 34GD5 | 508 |
| 6AJ8 | 524† | 6GX6 | 532 | 35HB8 | 548 |
| 6AL3 | 524 | 6GY6 | 536 | 50FK5 | 536 |
| 6AX3♦ | 548 | 6HF8 | 532 | VR75 | 524† |
| 6C10♦ | 548 | 6HG8 | 528 | 7233 | 540 |
| 6CB5 | 524† | 6HJ8 | 516 | 7586♦ | 548 |
| 6CB6 | 524† | 6HS8 | 524 | 7587♦ | 548 |
| 6CD6 | 524† | 6JC8 | 544 | 7695 | 512 |
| 6CD7 | 512 | 6K11♦ | 544 | 7701 | 520 |
| 6CQ4 | 528 | 8ET7 | 516 | 7716 | 520 |
| 6CW4♦ | 544 | 8FQ7 | 536 | 7895♦ | 548 |

† See correction notice.

♦ These types can only be tested on 648S, 658A, 648 converted with 648 SM kit, and 658 converted with 658 SM kit.

## JACKSON MODEL 598

Set 548

SUPPLEMENTS LATEST ROLL CHART 598-3

| Tube Type | A. | B. | C. | Fil. Cont. | D. | E. | F. | G. |
|---|---|---|---|---|---|---|---|---|
| 2GK5 | 2.5 | 3YZ | 7 | 4 | 5 | 2 | | 48 |
| 3AW3 | 3.0 | 2 | 1358 | 7 | 0 | Z | | 81 |
| 20EZ7 | Set line to 75% mark | | | | | | | |
| | 19. | 1 | 3 | 2 | 6 | 5 | | 47 |
| | " | 1 | 3 | | 7 | 8 | | 47 |
| 35HB8 | 35. | 4Z | | 5 | 7 | 9 | 6 | 41 |
| | " | 4Z | | | 3 | 1 | | 38 |

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## JACKSON
## MODEL 648

Set 548

SUPPLEMENTS LATEST ROLL CHART 648-24

| Tube Type | Fil. | D. | E. | Plate Test |
|---|---|---|---|---|
| 2GK5 | 2.5 | A234 | A57 | 22 YZ |
| 3AW3 | 3.0 | 12 | 9 | 39 XZ |
| 6AX3† | 6.3 | C5 | 3 | 14 W |
| 6C10† | 6.3 | AC3 | AC67 | 35 WX |
| | " | AC4 | AC59 | 35 WX |
| | " | AC2 | A18 | 35 WX |
| 6FJ7† | 6.3 | C6 | AC78 | 48 WZ |
| | " | C5 | AC29 | 30 W |
| 20EZ7 | Set line to 75% mark | | | |
| | 19. | AC145 | AC28 | 26 WX |
| | " | A456 | AC79 | 26 WX |
| 35HB8 | 35. | 127 | B689 | 26 V |
| | " | 125 | A34 | 15 XZ |
| 7586† | 6.3 | A123 | A45 | 22 V |
| 7587† | 6.3 | A123 | AB459 | 28 V |
| 7895† | 6.3 | A123 | A45 | 35 V |

† These types can only be tested on 648S or 648R converted with 648 SM kit.

## JACKSON
## MODEL 658

Set 548

SUPPLEMENTS LATEST ROLL CHART 658-4

| Tube Type | Sec. | Heater | Circuit H-K | P-G | Plate | Grid Test | Heater Current |
|---|---|---|---|---|---|---|---|
| 2GK5 | T | 2.5J | 123 | a57 | 21R | 5WY• | A10.6H Z600 |
| 3AW3 | D | 3.0L | 12 | 0 | 14U | VX | |
| 6AX3† | D | 6.4L | C5 | 3 | 18U | V | |
| 6C10† | T | 6.4J | C3 | ac67 | 27Q | 10XY• | |
| | T | " | C4 | ac59 | " | 10XY• | |
| | T | " | C2 | a18 | " | 10XY• | |
| 6FJ7† | T | 6.4K | C6 | ac78 | 16Q | 30WY• | |
| | T | " | C5 | ac29 | 37Q | 40VY• | |
| 20EZ7 | T | 22.D | C145 | ac28 | 33Q | 5XY• | |
| | T | " | 456 | ac79 | " | 5XY• | |
| 35HB8 | P | 38.F | 127 | b689 | 84R | 45VY• | |
| | T | " | 125 | a34 | 56R | 7WY• | |
| 7586† | T | 6.4J | 123 | a45 | 12S | 10WY• | |
| 7587† | P | 6.4J | 123 | ab450 | 26S | 15WY• | |
| 7895† | T | 6.4J | 123 | a45 | 46S | 10WY• | |

† These types can only be tested on 658A or 658 converted with 658 SM kit.

PHOTOFACT® Folder with CIRCUITRACE®

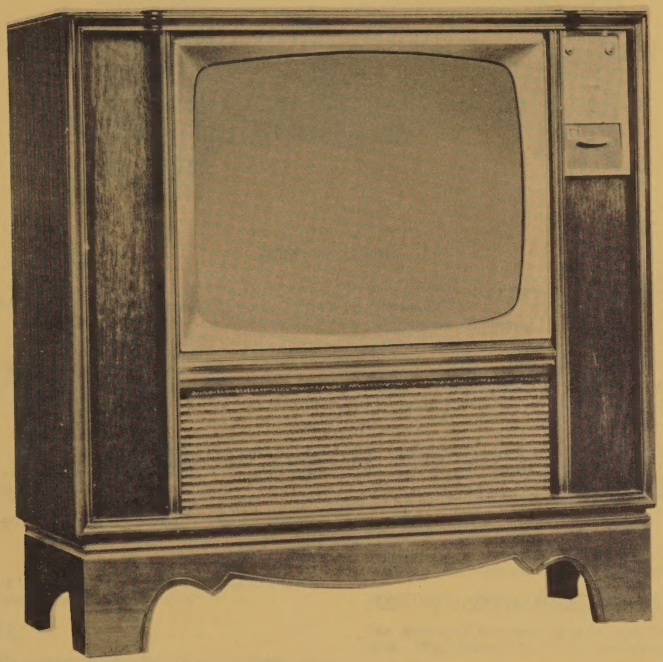
# CORONADO MODELS
# TV2-9614A, -9616A, -9618A

## IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

CORONADO MODELS
TV2-9614A, -9616A, -9618A



MODEL TV2-9614A

CORONADO MODELS
TV2-9614A, -9616A, -9618A

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The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

DATE 9-61 SET 548 FOLDER 1

SET 548 FOLDER 1

MODEL TV2-9614A

| | |
|---|---|
| TRADE NAME | Coronado Models TV2-9614A, TV2-9616A, TV2-9618A |
| SUPPLIER | Gamble-Skogmo, Inc. 15 North 8th Street, Minneapolis, Minnesota |
| TYPE SET | Television Receiver |
| TUBES | VHF - Seventeen, UHF - Eighteen |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle RATING VHF - 180 Watts, 1.75 Amp. @ 117 Volts AC |
| TUNING RANGE | Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) |

## SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE

A fuse wire is used for filament protection. (For location, see M3 in photo "Chassis - Bottom View".)

FUSE DEVICE

A 4.5Ω fusible resistor is used for low voltage power supply protection. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, it is necessary to remove rear cover.

AGC

The AGC may be varied by means of an AGC(Range)Control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube (thru 100K resistor) to various voltage points. (For location, see photo "Chassis - Top View".)

SYNC STABILITY

Sync stability may be varied by means of a Sync Stability Control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Drive Trimmer. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz Control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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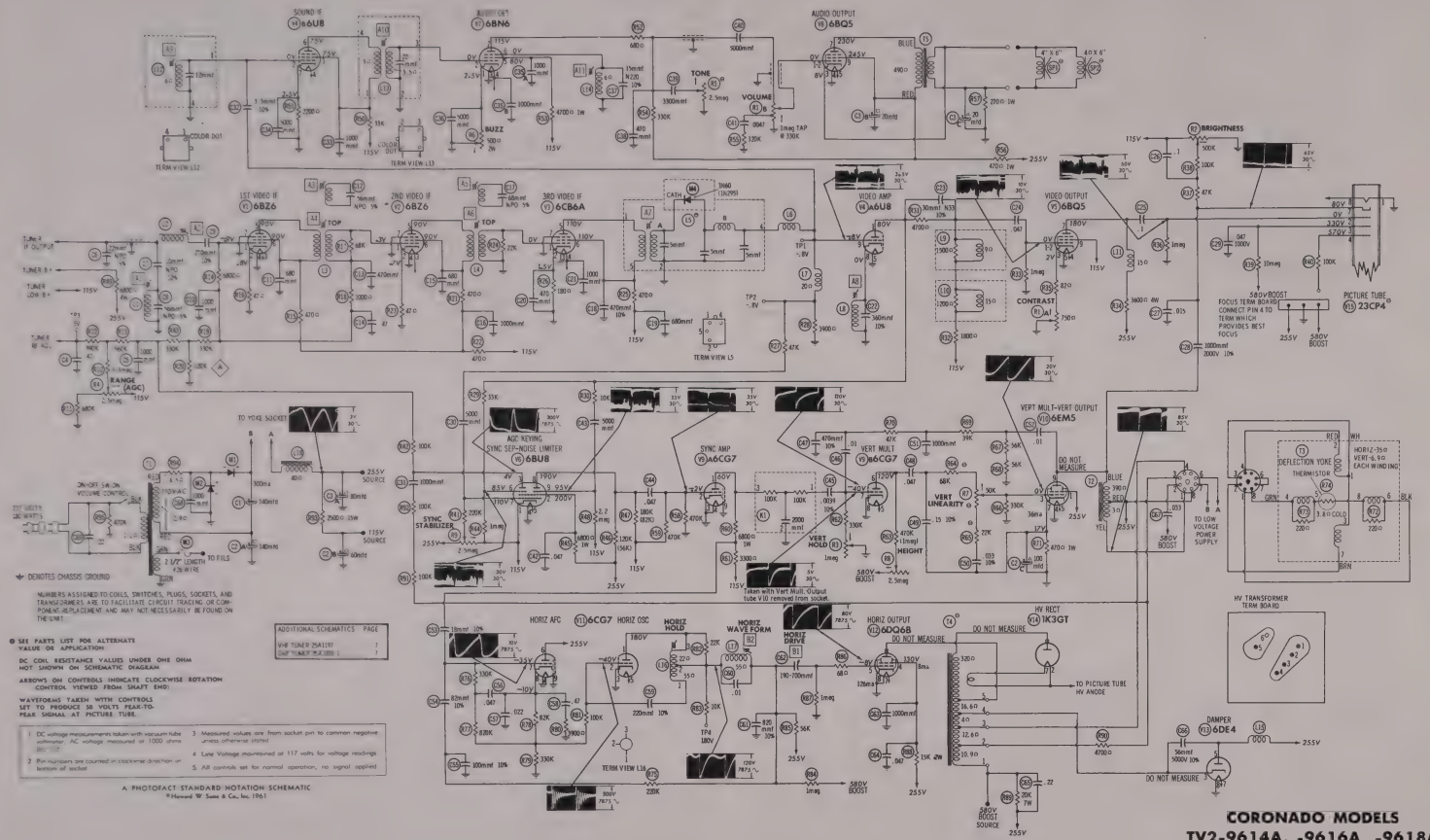
CORONADO MODELS
TV2-9614A, -9616A, -9618A

CORONADO MODELS
TV2-9614A, -9616A, -9618A

SET 548 FOLDER 1


SOUND IF V4 6U8
AUDIO OUTPUT V9 6BQ5
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 6CB6A
VIDEO AMP V4 6U8
VIDEO OUTPUT V5 6BQ5
BRIGHTNESS
CONTRAST
PICTURE TUBE V15 23CP4
580V BOOST
SYNC SEP-NOISE LIMITER V6 6BU8
SYNC AMP V5 6CG7
VERT MULT V9 6CG7
VERT MULT-VERT OUTPUT V10 6EM5
VERT LINEARITY
VERT HOLD
HEIGHT
DEFLECTION YOKE
HORIZ AFC V11 6CG7
HORIZ OSC
HORIZ HOLD
HORIZ WAVE FORM
HORIZ DRIVE
HORIZ OUTPUT V12 6DQ6B
HV RECT V16 1K3GT
HV TRANSFORMER
DAMPER V13 6DE4
TUNER V.H.F. V.C.
RANGE (AGC)
VOLUME CONTROL
SYNC STABILIZER
TO YOKE SOCKET
TO FILS
TO PICTURE TUBE HV ANODE
TO LOW VOLTAGE POWER SUPPLY
DO NOT MEASURE
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
ADDITIONAL SCHEMATICS PAGE
VHF TUNER 25A1197 7
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured on 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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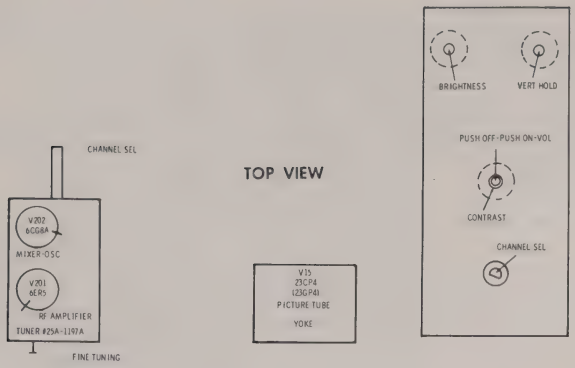
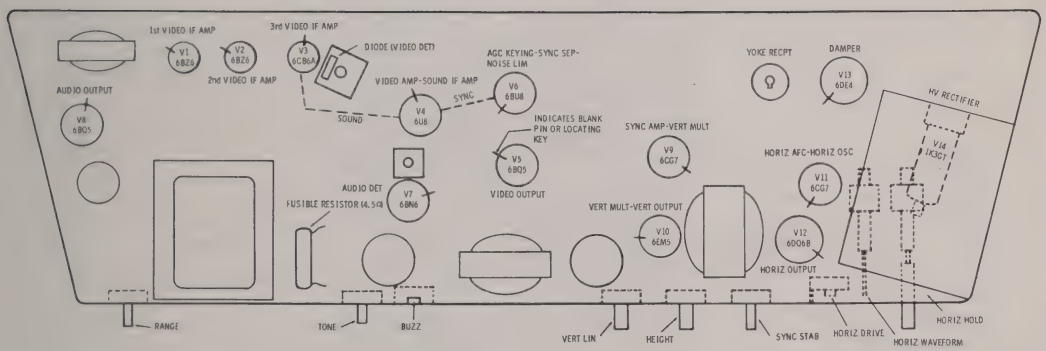
## CORONADO MODELS
## TV2-9614A, -9616A, -9618A

CORONADO MODELS
TV2-9614A, -9616A, -9618A

FOLDER 1

# TUBE PLACEMENT CHART




# TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor (4.5Ω), Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V11, V12, V13, V14, V15
No vertical deflection V9, V10
Poor vert. linearity or foldover V9, V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, Rectifiers (B+)
Vert. off freq. V9, V10
Horiz. off freq. V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V5, V15
Has pic, no sound V4, V7, V8
Overloaded picture V6

SYNC FAILURE
No vert. sync V6, V9
No horiz. sync V6, V9
No vert. or horiz. sync V6, V9

# ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8505L or 9295
WALSCO #2543, 2544 or 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point Ⓐ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Direct | High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis. | 44.0MC (10MC Swp.) | 47.25MC | Any non-interfering channel | Vert. Amp. thru demodulator probe (Fig. 1) to pin 5 (plate) of 6BZ6 (V1). Low side to chassis. | A1 | Adjust to place marker in trap notch as in Fig. 2. |
| 2. | " | " | " | 41.25MC<br>45.75MC<br>47.25MC | " | " | A2, A3, & Mixer Plate Coil | Adjust for response similar to Fig. 2. Mixer Plate Coil and A2 affect the shape of the top. A3 is adjusted to position the 47.25MC marker. |
| 3. | " | " | " | 42.8MC | " | Vert. Amp. thru 10K to TP-1. Low side to chassis. DC probe of VTVM thru 10K to same point. Common to chassis. (Across Video Det. Load) | A4 | Increase bias at point Ⓐ to 4.5 volts. Adjust sweep output for -2 volts DC at TP-1. Adjust A4 for maximum amplitude at marker. |
| 4. | " | " | " | 41.25MC | " | " | A5 | Adjust for MINIMUM amplitude at marker. |
| 5. | " | " | " | 45.3MC | " | " | A6 | Adjust for maximum gain at marker. |
| 6. | " | " | " | 44.0MC | " | " | A7 | " |
| 7. | " | " | " | 41.25MC<br>42.4MC<br>42.8MC<br>44.0MC<br>44.5MC<br>45.3MC<br>45.75MC<br>47.25MC | " | " | | Check for response similar to Fig. 3 with markers as shown. If necessary, retouch A2 thru A7 for desired response. A7 controls the symmetry of the top. A6 controls position of the 45.75MC marker. A4 controls position of the 42.4MC marker (this slug will seldom need retouching).<br>CAUTION: The position of 44.5MC marker is very critical (98%). |

4.5MC TRAP ALIGNMENT

Use 0-10 volts AC scale on VTVM.
Set Contrast fully clockwise.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 8. | .005mfd | High side to pin 9 (grid) of 6U8 (V4). Low side to chassis. | 4.5MC (Unmod.) | Any non-interfering channel | RF probe to pin 2 (grid) of picture tube. Common to chassis. | A8 | Adjust for MINIMUM deflection. |

SOUND IF ALIGNMENT

Tune in a TV signal and reduce signal level at the antenna terminals, by use of an attenuator or similar device, until a hiss similar to super-regeneration is heard in the sound.
Adjust A9, A10 and A11 for maximum undistorted sound.
Adjust the Buzz Control for MINIMUM buzz.

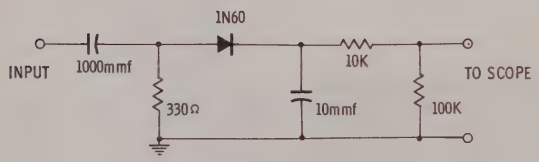



FIG. 1

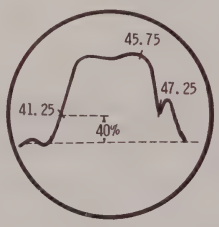



FIG. 2

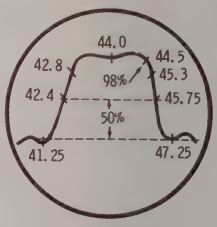
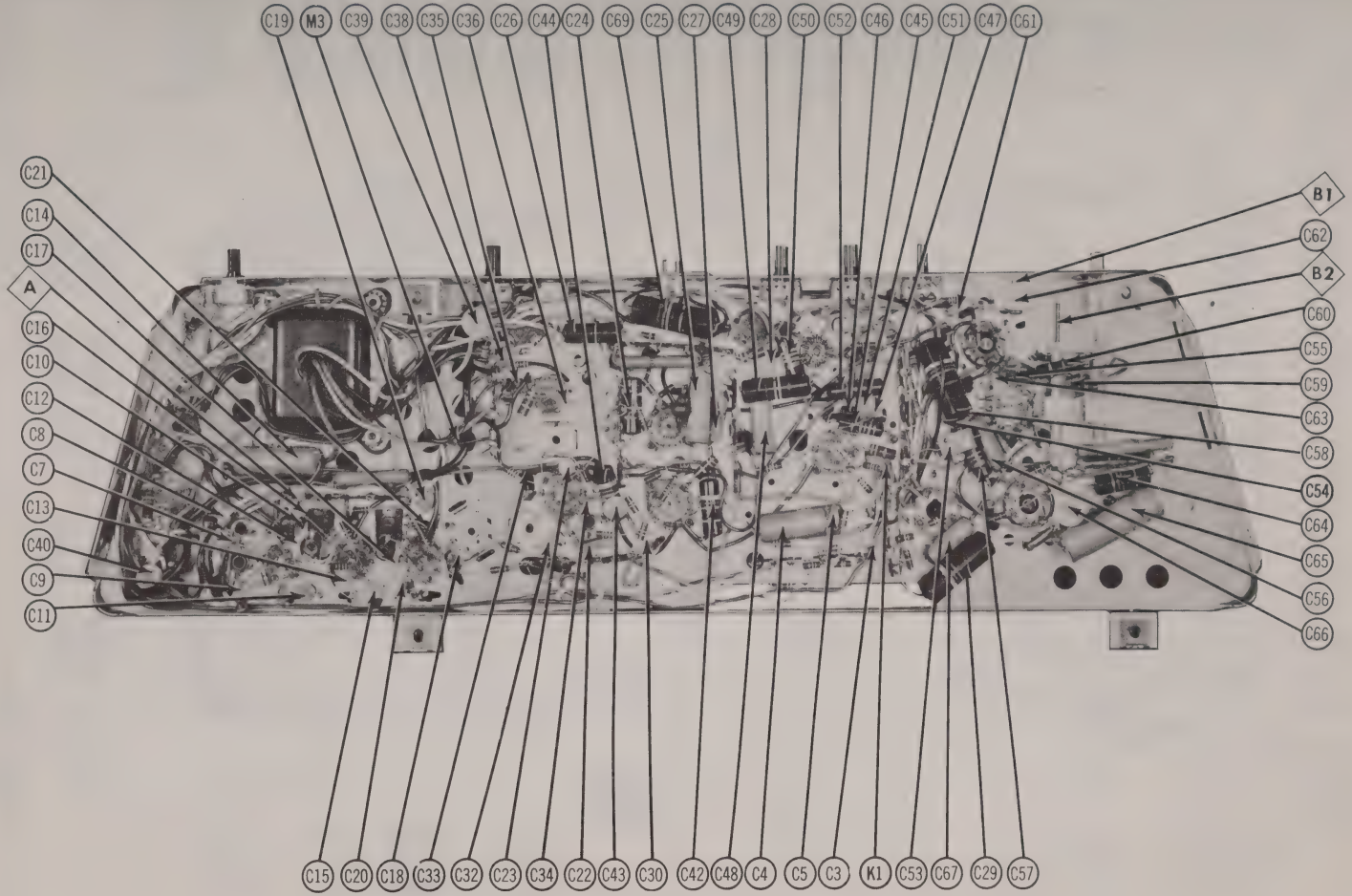
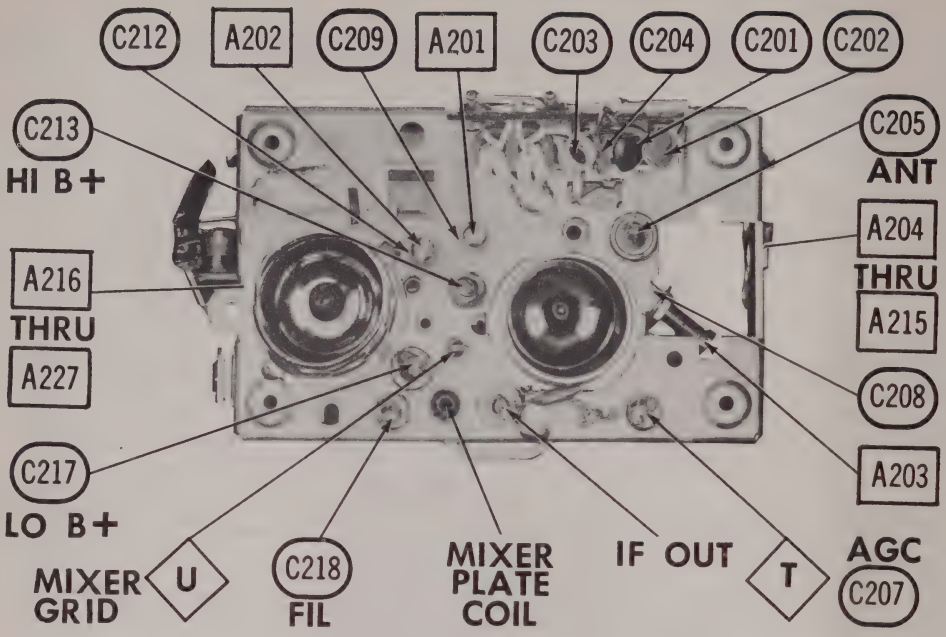


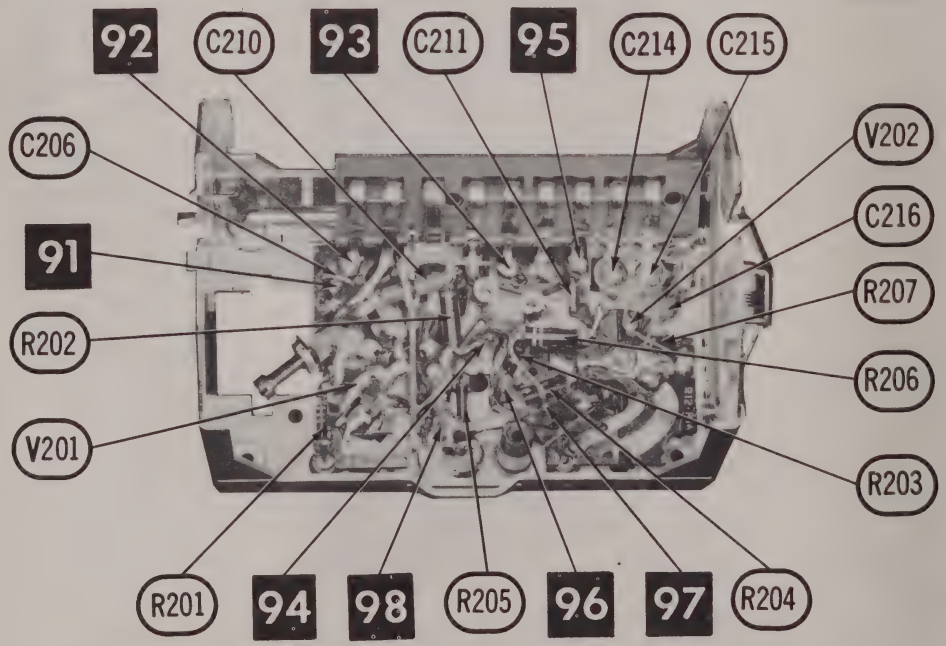

FIG. 3




CHASSIS BOTTOM VIEW - CAPACITOR, MISC., & ALIGN. IDENT.



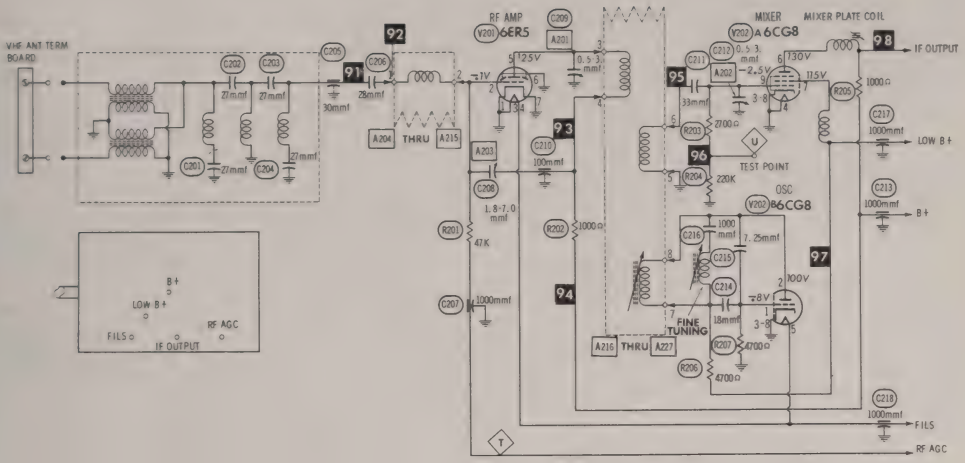

VHF TUNER 25A1197 - TOP VIEW




A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER 25A1197 - BOTTOM VIEW




A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE
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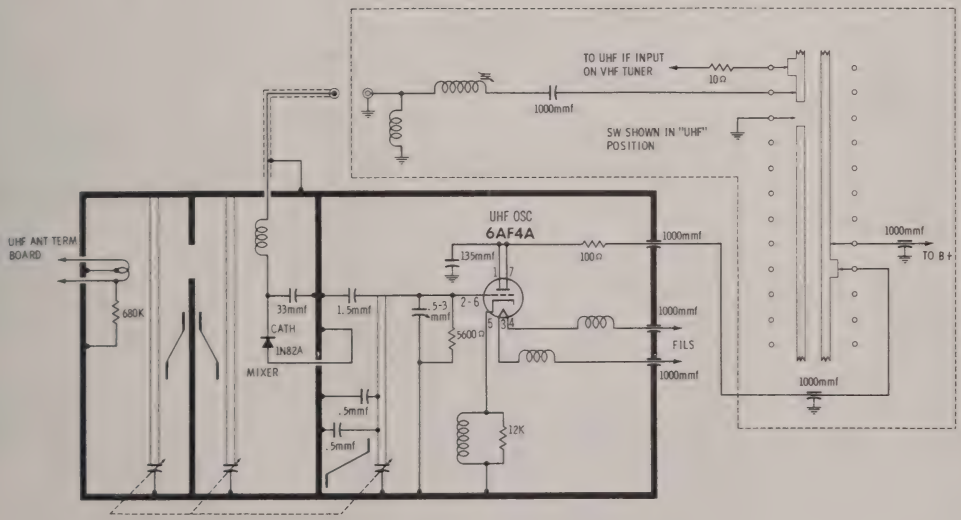
## VHF TUNER 25A1197

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## UHF TUNER 25A1202-1 & UHF POSITION SWITCH

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No | GENERAL ELECTRIC — USE | GENERAL ELECTRIC — TYPE | RAYTHEON — ITEM No | RAYTHEON — USE | RAYTHEON — TYPE | SYLVANIA — ITEM No | SYLVANIA — USE | SYLVANIA — TYPE |
|---|---|---|---|---|---|---|---|---|
| V1 | 1st Video-IF Amp | 6BZ6 | V7 | Audio Detector | 6BN6 | V7 | Audio Output | 6BQ6 |
| V2 | 2nd Video-IF Amp | 6BZ6 | V8 | Audio Output | 6BQ6 | V8 | Sync Amp. - Vert Mult | 6CQ7 |
| V3 | 3rd Video-IF Amp | 6CB6A | V9 | Sync Amp. - Vert Mult | 6CQ7 | V9 | Vert. Mult. - Vert Output | 6EM5 |
| V4 | Video Amp. - Sound IF Amp | 6U8 | V10 | Vert. Mult. - Vert Output | 6CQ7 | V10 | Horiz. AFC - Horiz. Osc. | 6DQ8A |
| V5 | Video Output | 6DQ6 | V12 | Horiz. Output | 6DQ6B | V12 | Horiz. Output | 6DQ6B |
| V6 | AGC, Keying - Sync Sep. - Noise Limiter | 6BU8 | V13 | Damper | 6DB4 | V13 | Damper | 6DB4 |
| | | | V14 | HV Rectifier | 1K3GT | V14 | HV Rectifier | 1K3GT |

## PICTURE TUBE

| ITEM No | REPLACEMENT DATA: CORONADO PART No | GENERAL ELECTRIC PART No | RAYTHEON PART No | SYLVANIA PART No | NOTES |
|---|---|---|---|---|---|
| V15 | 23CP4<br>23CP4 | 23CP4 ①<br>23CP4 ② | 23CP4 ①<br>23CP4 ② | 23CP4 ①<br>23CP4 ② | ① Aluminized<br>② Silver Screen "SS" |

## ELECTROLYTIC CAPACITORS

| ITEM No | RATING: CAP | RATING: VOLT | REPLACEMENT DATA: CORONADO PART No | AEROVOX PART No. | CORNELL DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1 | 140 | 150 | 45X428 | AFHR-23 | XA0261 | FP317 | TMS-1170 | TVL-1428 | |
| C2A | 40 | 150 | 45X464 | AFHR-167-15 | - BO616 | C-FP330-25 | TMT-3410 | TVL-3706.3 | |
| B | 60 | 150 | | | - BR6035 | - TC48 | TD-150-150 | TVA-1432 | |
| C | 100 | 50 | | | | | | | |
| C3A | 80 | 350 | 45X465 | AFH-07 | C0370 | FP333-15 | TMT-3763 | TVL-3793 | |
| B | 20 | 350 | | | | | | | |
| C | 30 | 50 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No | RATING | | | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL DUBILIER PART No. | FILMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|---|
| C4 | .47 | 200V | | | P38BN-47 | | CUB32P47 | 3DP-3-474 | GEM-2047 | 2TM-P47 |
| C5 | 1000 | | | | BPD-001 | DD-102 | BA101K | CCD-102 | B-250 | 5HK-D50 |
| C6 | 33 | NPO | 5% | | DTZ-22 | CU0233C | CM-19B-330J | CNO-433 | CM-433 | 10TCC-Q33 |
| C7 | 10 | NPO | 10% | | DTZ-10 | CU0C33C | CM-19B-100J | CNO-410 | CM-410 | 10TCC-Q10 |
| C8 | 56 | NPO | 5% | | TCZ-56 | CU0Q56C | CM-19B-560J | CNO-456 | CM-456 | 10TCC-Q56 |
| C9 | 270 | | 10% | | DA-270 | L107J7 | CD-271 | GP327 | | 10TS-T27 |
| C10 | 1000 | | | | BPD-001 | DD-102 | BA101K | CCD-102 | B-250 | 5HK-D50 |
| C11 | 680 | | | | BPD-00068 | DS-681 | BA10T68 | CCD-681 | B-368 | 10TS-T68 |
| C12 | 56 | NPO | 5% | | | TCZ-56 | CM-19B-560J | CM-456 | CM-456 | 10TCC-Q56 |
| C13 | 470 | | | | BPD-00047 | DD-471 | BA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C14 | .47 | 200V | | | P38BN-47 | | CUB32P47 | 3DP-3-474 | GEM-2047 | 2TM-P47 |
| C15 | 680 | | | | BPD-00068 | DS-681 | BA10T68 | CCD-681 | B-368 | 10TS-T68 |
| C16 | 1000 | | | | BPD-001 | DD-102 | BA101K | CCD-102 | B-250 | 5HK-D50 |
| C17 | 68 | NPO | 5% | | DTZ-68 | CU0683C | CM-19B-680J | CNO-468 | CM-468 | 10TCC-Q68 |
| C18 | 470 | | 10% | | DA-470 | DD-471 | SR6T47 | CCD-471 | GP347 | 10TS-T47 |
| C19 | 680 | | | | BPD-00068 | DS-681 | BA10T68 | CCD-681 | B-368 | 10TS-T68 |
| C20 | 470 | | | | BPD-00047 | DD-471 | BA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C21 | 1000 | | | | BPD-001 | DD-102 | BA101K | CCD-102 | B-250 | 5HK-D50 |
| C23 | 390 | | 10% | | 1488-00036 | | CM-19B-391K | CM-439 | | 10TC-Q39 |
| C24 | 30 | N33 | 10% | #47X849 | | | | | | |
| C25 | .047 | 600V | | | P48BN-047 | DD-473 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C26 | .1 | 600V | | | P48BN-1 | DF-104 | CUB4J1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C27 | .25 | 400V | | | P38BN-25 | DF-254 | CUB32J5 | 4DP-3-254 | GEM-4025 | 2TM-P10 |
| C27 | .015 | 600V | | | P48BN-015 | DD-153 | CUB6S15 | 6DP-2-153 | GEM-6153 | 6TM-S15 |
| C28 | 2000 | 2000V | 10% | #60X98-1 | | | | | | |
| C29 | .047 | 1000V | | | P108BN-047 | | CUB10S47 | 10DP-5-473 | GEM-10047 | 10TM-S47 |
| C30 | 5000 | | | | BPD-005 | DD-502 | BA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C31 | 1000 | | | | BPD-001 | DD-102 | BA101K | CCD-102 | B-250 | 5HK-D50 |
| C32 | 3.3 | | 10% | | WPO-3I 3.3 | TCZ-33R3 | CU033C | CCTO-33R3 | CNO-533 | 10TCC-V33 |
| C33 | 1000 | | | | BPD-001 | DD-102 | BA101K | CCD-102 | B-250 | 5HK-D50 |
| C34 | 5000 | | | | BPD-005 | DD-502 | BA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C35A | 1000 | | | | | | | CCD-102 | | |
| B | 1000 | | | | BPD-X1001 | DD8-102 | BYD5DDL | CCD-102 | B3X250 | 5HK-2D50 |
| C36 | 5000 | | | | BPD-005 | DD-502 | BA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C37 | 15 | N220 | 10% | #47X872 | | | | | | 10TC-Q15 |
| C38 | 470 | | | | BPD-00047 | DD-471 | BA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C39 | 3300 | | | | BPD-0033 | DD-332 | BA10D33 | CCD-332 | B-333 | 5HK-D33 |
| C40 | 5000 | | | | BPD-005 | DD-502 | BA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C41 | .0047 | 400V | | | P448N-0047 | DS-472 | CUB6D47 | 6DP-1-472 | GEM-6247 | 6TM-D47 |
| C42 | .047 | 400V | | | P448N-047 | DD-473 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C43 | 5000 | | | | BPD-005 | DD-502 | BA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C44 | .047 | 600V | | | P48BN-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C46 | .0039 | 600V | 10% | | P648CM-0039 | | DPM6S39 | 6MT-1-392 | FL-339 | 6PS-D39 |
| C47 | 91 | 600V | | | P48BN-91 | DS-103 | CUB4S | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C48 | .047 | | 10% | | DA-473 | DD-473 | SR6T47 | CCD-471 | GP347 | 10TS-T47 |
| C49 | .047 | 600V | | | P588N-047 | DD-503 | CUB6S47 | 6DP-3-473 | GEM-6147 | 6TM-S47 |
| C50 | .01 | 200V | 10% | | V84CZ215-10T | | PM3P10 | 3DP-3-154 | GEM-3015 | 3TM-P15 |
| C50 | .033 | 200V | 10% | | V84C2233-10T | | PM3S33 | 3DP-3-333 | GEM-4S33 | 4TM-S33 |
| C51 | 1000 | | | | BPD-001 | DD-102 | BA101K | CCD-102 | B-250 | 5HK-D50 |
| C52 | .01 | 600V | | | P648N-01 | DS-103 | CUB6S | 6DP-1-103 | GEM-611 | 6TM-S10 |
| C53 | 15 | | 10% | | 1469-00001S | TCZ-15 | 22R5Q15 | CM-19B-150K | CNO-415 | MS-415 |
| C53 | 62 | | 10% | | 1469-000062 | TCZ-62 | 22R5Q62 | CM-19B-620K | CNO-462 | MS-462 |
| C54 | 100 | | 10% | | 1469-0001 | TCZ-100 | 22R5Q1 | CM-19B-101K | MCB2S5 | MS-310 |
| C55 | .047 | 200V | | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C56 | .022 | 600V | | | P588N-022 | DD-303 | CUB4S22 | 4DP-3-223 | GEM-4122 | 4TM-S22 |
| C57 | .47 | 200V | | | P28BN-47 | | CUB2P47 | 2DP-5-474 | GEM-2047 | 2TM-P47 |
| C59 | 220 | | 10% | | 1469-00022 | TCZ-220 | 22R5T22 | CM-19B-221K | CNO-322 | MS-322 |
| C60 | .01 | 400V | | | P488N-01 | DS-103 | CUB4S | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C61 | 820 | | 10% | | 1469-00082 | | 5HS782 | CM-19B-821K | MCB2S1 | MS-382 |
| C62 | 180-700 | | | 47A278 | | | | 483 | | |
| C63 | 1000 | | | | BPD-001 | DD-102 | BA101K | CCD-102 | B-250 | 5HK-D50 |
| C64 | .047 | 400V | | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C65 | 22 | 600V | | | P568N-22 | | CUB6P22 | 6DP-5-224 | GEM-6022 | 6TM-P22 |
| C66 | 56 | 5000V | 10% | #47X755 | | | | | | |
| C67 | .033 | 600V | | | P588N-033 | DD-303 | CUB6S33 | 6DP-3-333 | GEM-6133 | 6TM-S33 |
| C68 | 1000 | | | | BPD-001 | DD-102 | BA101K | CCD-102 | B-250 | 5HK-D50 |
| C69 | .22 | 400V | | | P488N-22 | | CUB4P22 | 4DP-5-224 | GEM-4022 | 4TM-P22 |

# Coronado Part Number
* Not normally in distributor's stock. Available in a distributor on order to manufacturer.

## CONTROLS

| ITEM No | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: CORONADO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS - IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 7500 | ½ | 78X38 | F1-2 | | | | Contrast |
| B | 1meg | ½ | | BP5-57 | GTV-724 | † Q41-1819 | * UE618-S | Volume |
| | 530K Tap | ½ | | | | | | |
| C | Switch | | | Not Req. | | Q11-133 | U50 | push-Push Off-On |
| R2A | 500K | 1 | 40X483 | B-49 | A47-500K-S | Q11-133 | U50 | Brightness |
| B | Shaft | | | Not Req. | F3-3 | Not Req. | Not Req. | |
| R3A | 1meg | ½ | 40X435 | B-49 | A47-1meg-S | Q11-137 | U94 | Vert. Hold |
| B | Shaft | | | Not Req. | F3-3 | Not Req. | Not Req. | |
| R4 | 2.5meg | 1 | 40X466-3 | T7-83 | B47-2.5meg-S | HLC3 | SU-585 | Hangs (AGC) |
| R5 | 2.5meg | 1 | 40X466-3 | T7-83 | B47-2.5meg-S | HLC3 | SU-585 | Tone Note 1 |
| R6 | 500Ω | 2(WW) | 40X473 | | | 1U0-500 | PTL-500 | Bass |
| R7A | 50K | 1 | 40X467-3 | T7-31 | B47-50K-S | B11-133 | PTA541 | Vert. Linearity Note 2 |
| B | Shaft | | | Not Req. | Not Req. | TM4 | Not Req. | |
| R8 | 2.5meg | 1 | 40X466-3 | T7-83 | B47-2.5meg-S | HLC3 | SU-585 | Height |
| R9 | 2.5meg | 1 | 40X466-3 | T7-83 | B47-2.5meg-S | HLC3 | SU-585 | Sync Stabilizer |

Note 1. Some versions may use 6.5meg (Pt. #40X493-2).
Note 2. Some versions may use 100K for R7A. (R64 and R65 values are 22K in this application).
USE REPLACEMENT Pt. #40X492-2 (150K) used for R7A. R64 and R65 are not used with this application.
† "CONCENTRIKIT" Equivalent: K-16 Kit with Base Elements and Shafts: B11-105, P17-113 (Panel)
B13-137X, K23-205 (Rear)
* "STA-LOC" Equivalent: FA75IL, RUP10T254, OF1437.

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R10 | 390K | | | |
| R11 | 680K | | | |
| R12 | 3.3meg | | | |
| R13 | 560K | | | |
| R14 | 68000 | | | |
| R15 | 470Ω | | | |
| R16 | 47Ω | | | |
| R17 | 68K | | | |
| R18 | 1000Ω | | | |
| R19 | 330K | | | |
| R20 | 120K | | | |
| R21 | 470Ω | | | |
| R22 | 1800Ω | | | |
| R23 | 1meg | | | |
| R24 | 3600Ω 4W | PW5-3600 | 4G-3600 | #43X331 |
| R25 | 82Ω | | | |
| R26 | 1meg | | | |
| R27 | 47K | | | |
| R28 | 100K | | | |
| R29 | 10meg | | | |
| R40 | 100K | | | |
| R41 | 220K | | | |
| R42 | 100K | | | |
| R43 | 330K | | | |
| R44 | 1meg | | | |
| R45 | 6800Ω 1W | | | |
| R46 | 120K | | | (56K) * |
| R47 | 180K | | | (82K) * |
| R48 | 2.5meg | | | |
| R49 | 6800Ω 4W | PW5-6800 | 4G-6800 | #43X344 |
| R50 | 33K | | | |
| R51 | 2200Ω | | | |
| R52 | 680Ω | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R53 | 4700Ω 1W | | | |
| R54 | 330K | | | |
| R55 | 1.8K | | | |
| R56 | 470Ω 1W | | | |
| R57 | 270Ω 1W | | | |
| R58 | 470K | | | |
| R59 | 470K | | | |
| R60 | 6800Ω 1W | | | |
| R61 | 3300Ω | | | |
| R62 | 330K | | | |
| R63 | 470K | | | (1meg) * |
| R64 | 68K | | | Note 1 |
| R65 | 22K | | | Note 2 |
| R66 | 330K | | | |
| R67 | 56K | | | |
| R68 | 56K | | | |
| R69 | 39K | | | |
| R70 | 47K | | | |
| R71 | 4700Ω 1W | | | |
| R72 | 330Ω | | | |
| R73 | 220Ω | | | |
| R74 | 3.9Ω (Cold) | | | |
| R75 | 220K | | | |
| R76 | 330K | | | |
| R77 | 820K | | | |
| R78 | 82K | | | |
| R79 | 330K | | | |
| R80 | 3900Ω | | | |
| R81 | 100K | | | |
| R82 | 22K | | | |
| R83 | 10K | | | |
| R84 | 1meg | | | |
| R85 | 56K | | | |
| R86 | 68Ω | | | |
| R87 | 1meg | | | |
| R89 | 15K 2W | | | |
| R90 | 20K 7W | PW7-20K | 7W-SQ-20K | #43X354 |
| R91 | 4700Ω | | | |
| R92 | 100K | | | |
| R93 | 2500Ω 15W | PW15-2500 | 15W-SQ-2500 | #43X313 |
| R94 | 4.5Ω | FR 5.6 | F 4.7 | #43X398 |
| R95 | 470K | | | |

Note L. R84 value 22K (when 100K Vert. Lin. Control is used.)
R84 not used (when 100K Vert. Lin. Control is used.)
Note 2. R85 not used (when Vert. Lin. Control is 150K).
# Coronado Part Number. ◆ Alternate Value.

## COMPONENT COMBINATIONS

| ITEM No. | DESCRIPTION | REPLACEMENT DATA: CORONADO PART No. |
|---|---|---|
| X1 | Vert. Integrator | 2000mmf, 100K, 100K — 76X19 |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA: CORONADO PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1 | 47.25MC Trap | 9A3481 | T7-153 | 6126 | RTC-8516 | T218 | ① Includes Complete Assy. |
| L2 | 1st Video IF | 9A3585 | T7-131 | 6226 | RTC-8626 | T218 | ② Wound on 1500Ω Resistor |
| L3A | 2nd Video IF | 9A3563 | | 6222 | RTC-8553 | T225 | ③ Wound on 1200Ω Resistor |
| B | 47.25MC Trap | | | | | | |
| L4A | 3rd Video IF | 9A3414 | | 6224 | RTC-8552 | T224 | |
| B | 41.5MC Trap | | | | | | |
| L5A | 4th Video IF | 9A3270 ① | | | | | |
| B | Peaking (30uh) | | T7-190 | 6178 | RTC-8593 | T301 | |
| L6 | Peaking (30uh) | 9A3275 | T7-180 | 6176 | RTC-8593 | T301 | |
| L7 | Peaking (360uh) | 38A34 | T7-190 | 6134 | RTC-8578 | T32 | |
| L8 | 4.5MC Trap | 9A3074 | T7-151 | 1470 | RTC-8603 | T280 | |
| L9 | Peaking (80uh) | 38A16 ② | T7-181 ▲ | 6172 ▲ | RTC-8590 ▲ | T303 ▲ | ▲ Parallel with 1500Ω Res. |
| L10 | Peaking (190uh) | 38A49 ③ | T7-197 ▲ | 6154 ▲ | RTC-8586 ▲ | T312 ▲ | ▲ Parallel with 1200Ω Res. |
| L11 | Peaking (190uh) | 38A3 | T7-197 | 6194 | RTC-8586 | T312 | |
| L12 | 1st Sound IF | 9A3434 | T7-154 | 1470-A | RTC-8604 | T247 | |
| L13 | 2nd Sound IF | 9A3565 | T7-113 | 6203 | RTC-8545 | T235 | |
| L14 | Quadrature | 9A2387 | T7-121 | 1480 | RTC-8605 | T251 | |
| L15 | RF Choke (1.5uh) | 9A2380 | RC-562 | 4604 | RTC-8516 | T956 | |

## COILS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: CORONADO PART No | Merit PART No | Miller PART No | Thordarson PART No | Triad PART No | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| L16 | Horiz. Osc. | 9A2481 | | | | | | |
| L17 | Horiz. Waveform | 9A2372 | MWC-12 | 6315 | RTC-8628 | H8-8 | WLC-3 | T110 |

## FILTER CHOKE

| ITEM No. | RATINGS: CURRENT (Measured) | RATINGS: DC RES | RATINGS: INDUCTANCE (1) CURRENT 1000 ^A_mA | REPLACEMENT DATA: CORONADO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L18 | .300A | 40Ω | 1 Hy. | 52X104 | | C-2343① | 26C44 | C-28X | ① Drill new mounting hole(s). |

## TRANSFORMER (POWER)

| ITEM No. | RATING: PRI. | RATING: SEC. 1 | RATING: SEC. 2 | REPLACEMENT DATA: TRUETONE PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 117V ① 1.75A | 110V ① 1A AC | 6.3V ② 9A | 53X383 | | | | R-124BA | |

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: CORONADO PART No | Merit PART No | Stancor PART No | Thordarson PART No | Triad PART No | NOTES |
|---|---|---|---|---|---|---|---|
| T2 | Vert. Output | 51X209 | | | | A-140X | |
| T3 | Horiz. Output (15.8MH) (10mh) (Vert. 13.8MH) | 9A-2476 ① | | | | | |
| | Yoke Clamp | 30X628 | | | | | |
| T4 | Horiz. Output | 53X382A | | | | D-183 *② | |
| | Alt. Horiz. Output | 53X382 | | | | | |

① Includes rear cover and centering device.
② Terminals #5, 6 and 7 not used. Cut out high voltage cage or cut and tape terminals #5, 6 and 7.

### *HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

| ORIGINAL TERMINAL CONNECTIONS | Merit Replacement Connections | Stancor Replacement Connections | Thordarson Replacement Connections | Triad Replacement Connections |
|---|---|---|---|---|
| 5 | | | | 1 |
| 4 | | | | 2 |
| 3 | | | | 3 |
| 2 | | | | 4 |
| 1 | | | | 8 |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE: PRI. | IMPEDANCE: SEC. | REPLACEMENT DATA: CORONADO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T5 | 6300Ω | 3-4Ω | 51X308 | A-3026 | A-3859① | 24S51 ① | S-49X | ① Drill new mounting hole(s). |

## SPEAKER

| ITEM No. | TYPE: SIZE | TYPE: FIELD | TYPE: V. C. IMP. | REPLACEMENT DATA: CORONADO PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 4" x 6" | PM | 6-8Ω | 12A586A | 46AIZ6.4 | Some versions use additional 8" Speaker (Pt. #12A590) |
| SP2 | 4" x 6" | PM | 6-8Ω | 12A586A | 46AIZ6.4 | |

## POWER RECTIFIERS

| ITEM No. | RATING: CURRENT (Measured) | REPLACEMENT DATA: CORONADO PART No. | RCA PART No. | SARKES TARZIAN PART No. | NOTES |
|---|---|---|---|---|---|
| M1 | .300A | 86X23 * | 1N1763 * | 40H * | * Silicon |
| M2 | .300A | 86X23 * | 1N1763 * | 40H * | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA: CORONADO PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
|---|---|---|---|---|---|---|---|---|
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M3 | 2½" length #26 wire. | | | | | | | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA: CORONADO PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | NOTES |
|---|---|---|---|---|---|
| M4 | 1N60 or 1N295 | | | 1N60 or 1N295 | Video Detector (Pigtail) |

CORONADO MODELS TV2-9614A, -9616A, -9618A

FOLDER 1

# PARTS LIST AND DESCRIPTIONS (Continued)

## MISCELLANEOUS

| ITEM No. | PART NAME | CORONADO PART No. | NOTES |
|---|---|---|---|
| M5 | Tuner | 25A1197 | VHF with UHF Provisions, STANDARD COIL REPLACEMENT #GG/4220A |
| | Tuner | 25A1202-1 | UHF |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Mask | 4X1551-2 | Picture Tube |
| Knob | 10A1000-6 | VHF Channel Selector |
| Knob | 10A998-2 | UHF Tuning |
| Knob | 10A999-1 | UHF Indicator |
| Knob | 26A699 | Fine Tuning |
| Knob | 10A932-1 | Volume |
| Knob | 10A933-1 | Contrast |
| Knob | 10A1018-1 | Horizontal Hold |

## WIRING DATA

| | | |
|---|---|---|
| High Voltage Lead | Use BELDEN No. | 8869 |
| Shielded Hook-up Wire | Use BELDEN No. | 8885 (Single Conductor)<br>8738 (Two Conductor) |
| General-use Unshielded Hook-up Wire | Use BELDEN No. | 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord (Interlock Type) | Use BELDEN No. | 8874 |
| 300Ω Tuner Input Lead | Use BELDEN No. | 8225 |
| 300Ω Antenna Lead-in | Use BELDEN No. | 8230 or 8275 |
| Antenna Rotor Cable | Use BELDEN No. | 8464 (Flat) or 8484 (Round) - 4 Conductor<br>8485 (Round) - 5 Conductor<br>8488 (Round) - 8 Conductor |

# TUNER PARTS LIST AND DESCRIPTIONS

## 25A1197

## TUBES

| • GENERAL ELECTRIC • | | | • RAYTHEON • | | • SYLVANIA • |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V201 | RF Amp. | 6ER5 | V202 | Mixer - Osc. | 6CG8 (6CG8A) * |

* Alternate

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C201 | 27 | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C202 | 27 | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C203 | 27 | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C204 | 27 | | N750-DI 25 | TCN-27 | C10Q27U | CCTN-270 | CN7-427 | 10TCU-Q27 |
| C205 | 30 | | | | | | | |
| C206 | 28 | | | | | | | |
| C207 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C208 | 1.8-7.0 | | | 829-7 | | | | |
| C209 | 0.5-3.0 | | | 829-3 | | CV-1 | CT565 | |
| C210 | 100 | | EF-0001 | MFT-100 | | | | |
| C211 | 33 | | | | | | | |
| C212 | 0.5-3.0 | | | 829-3 | | CV-1 | CT565 | |
| C213 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C214 | 18 | | | | | | | |
| C215 | 7.25 | | | | | | | |
| C216 | 1000 | | DI-1000 | DD-102 | L10D1 | CCD-102 | GP210 | 10TS-D10 |
| C217 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C218 | 1000 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R201 | 47K | | | | R205 | 1000Ω | | | |
| R202 | 1000Ω | | | | R206 | 4700Ω | | | |
| R203 | 2700Ω | | | | R207 | 4700Ω | | | |
| R204 | 220K | | | | | | | | |

# TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage Lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201, A202, A203 .... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a variable bias supply to point Ⓣ. Positive to chassis. Set bias for 2.5 volts.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | Across antenna terminals with 120Ω in each lead. | 195MC | 193.25MC<br>197.75MC | 10 | Vert. Amp. thru 10K to point Ⓤ. Low side to chassis. | A201, A202, A203 | Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope. |
| 2. | " | 213MC | 211.25MC<br>215.75MC | 13 | " | A204 | Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns. |
| | | 207MC | 205.25MC<br>209.75MC | 12 | | A205 | |
| | | 201MC | 199.25MC<br>203.75MC | 11 | | A206 | |
| | | 195MC | 193.25MC<br>197.75MC | 10 | | A207 | |
| | | 189MC | 187.25MC<br>191.75MC | 9 | | A208 | |
| | | 183MC | 181.25MC<br>185.75MC | 8 | | A209 | |
| | | 177MC | 175.25MC<br>179.75MC | 7 | | A210 | |
| | | 85MC | 83.25MC<br>87.75MC | 6 | | A211 | |
| | | 79MC | 77.25MC<br>81.75MC | 5 | | A212 | |
| | | 69MC | 67.25MC<br>71.75MC | 4 | | A213 | |
| | | 63MC | 61.25MC<br>65.75MC | 3 | | A214 | |
| | | 57MC | 55.25MC<br>59.75MC | 2 | | A215 | |

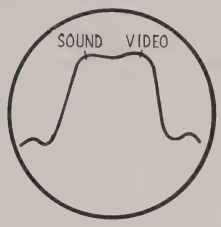


FIG. 201

VHF OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.

| | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 3. | Across antenna terminals with 120Ω in each lead. | 213MC | 211.25MC<br>215.75MC | 13 | Vert. Amp. thru 47K across Video Det. Load. | A216 | Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%. |
| | | 207MC | 205.25MC<br>209.75MC | 12 | | A217 | |
| | | 201MC | 199.25MC<br>203.75MC | 11 | | A218 | |
| | | 195MC | 193.25MC<br>197.75MC | 10 | | A219 | |
| | | 189MC | 187.25MC<br>191.75MC | 9 | | A220 | |
| | | 183MC | 181.25MC<br>185.75MC | 8 | | A221 | |
| | | 177MC | 175.25MC<br>179.75MC | 7 | | A222 | |
| | | 85MC | 83.25MC<br>87.75MC | 6 | | A223 | |
| | | 79MC | 77.25MC<br>81.75MC | 5 | | A224 | |
| | | 69MC | 67.25MC<br>71.75MC | 4 | | A225 | |
| | | 63MC | 61.25MC<br>65.75MC | 3 | | A226 | |
| | | 57MC | 55.25MC<br>59.75MC | 2 | | A227 | |

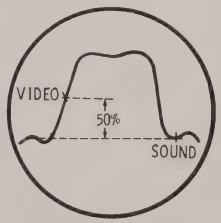
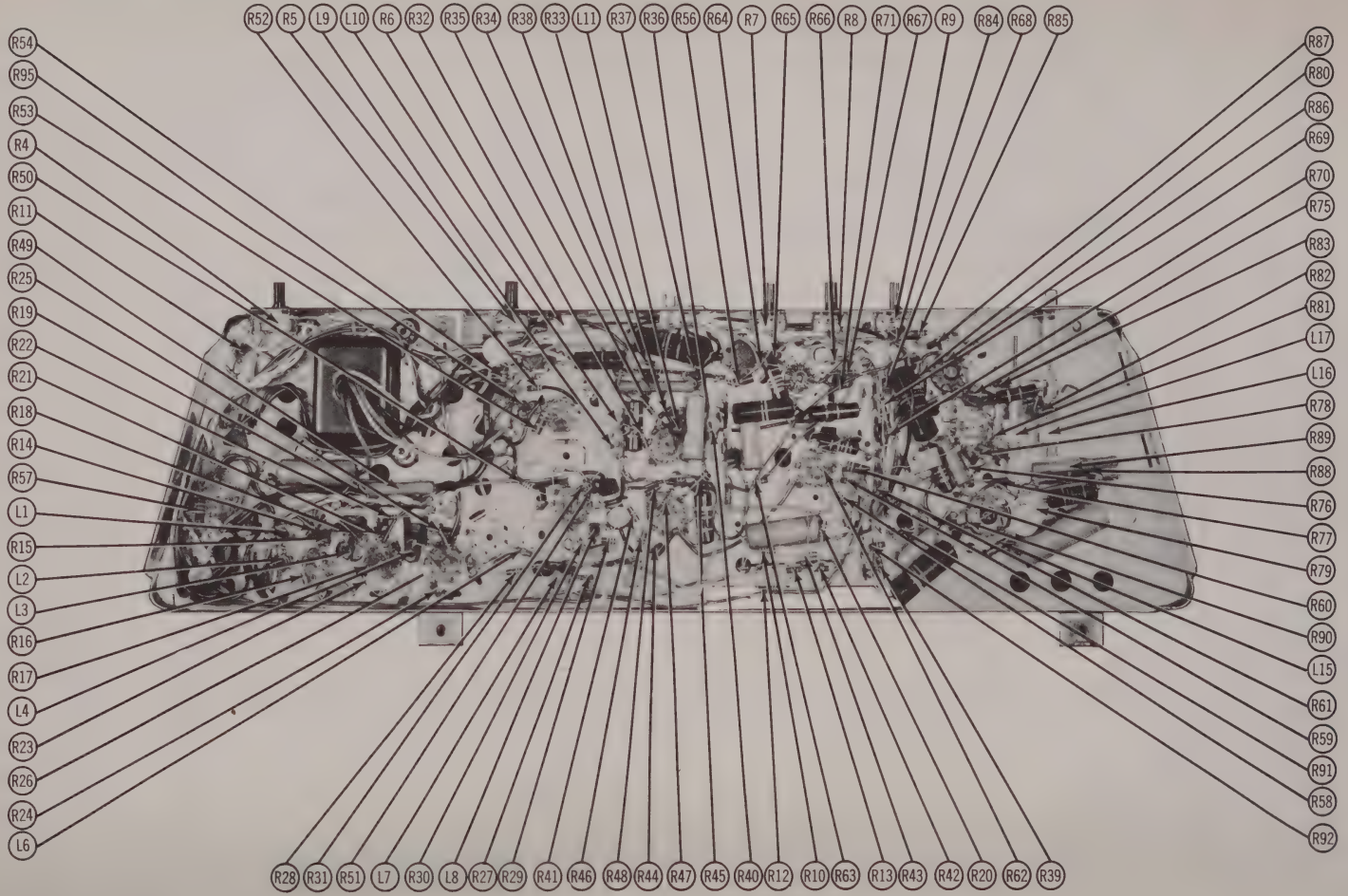
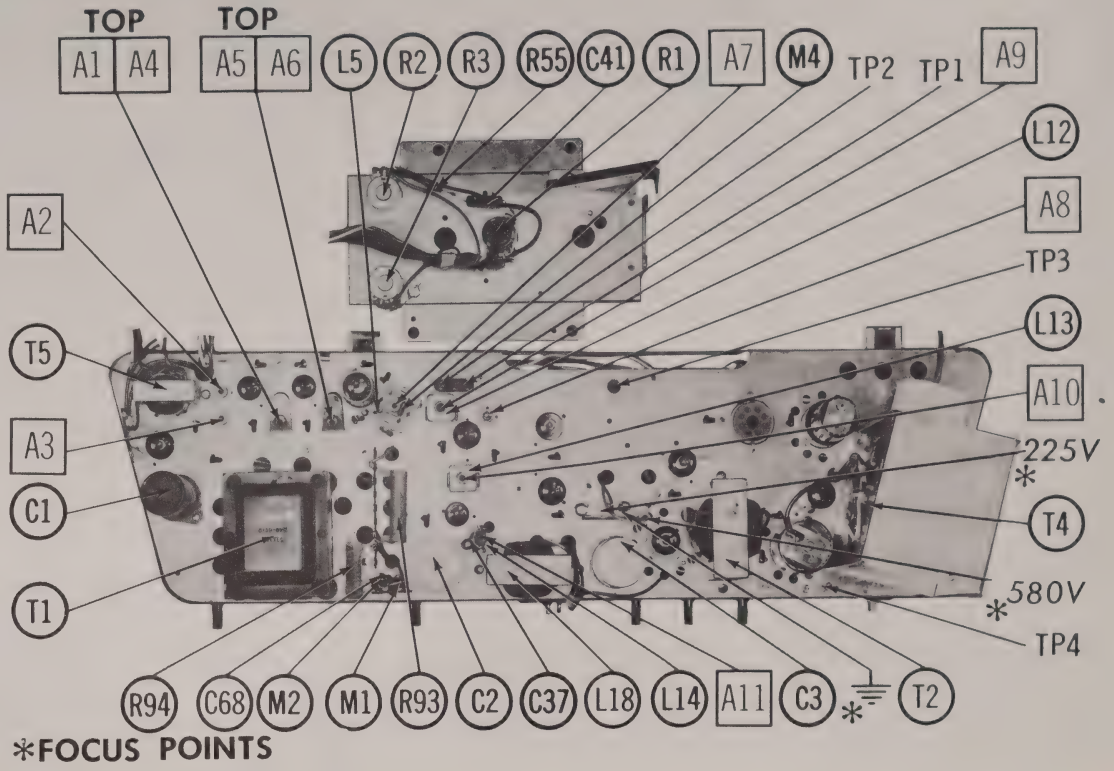


FIG. 202




CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.




| |
|---|
| TP1 -.8V<br>VIDEO AMP GRID |
| TP2 -.8V<br>SYNC TAKEOFF |
| TP3 .5V<br>AGC |
| TP4 180V<br>HORIZ WAVEFORM |

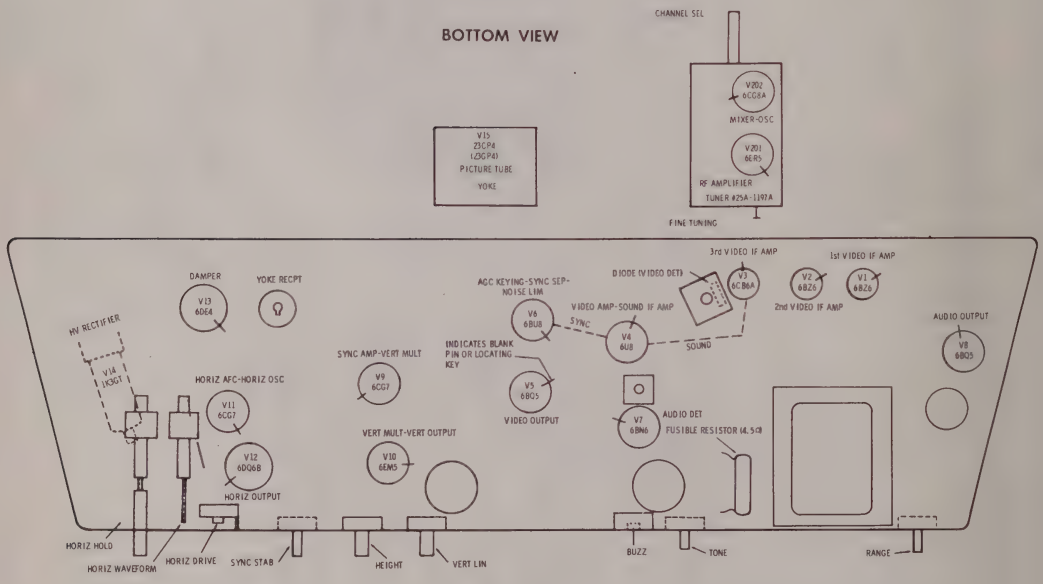
CHASSIS - TOP VIEW

# RESISTANCE MEASUREMENTS

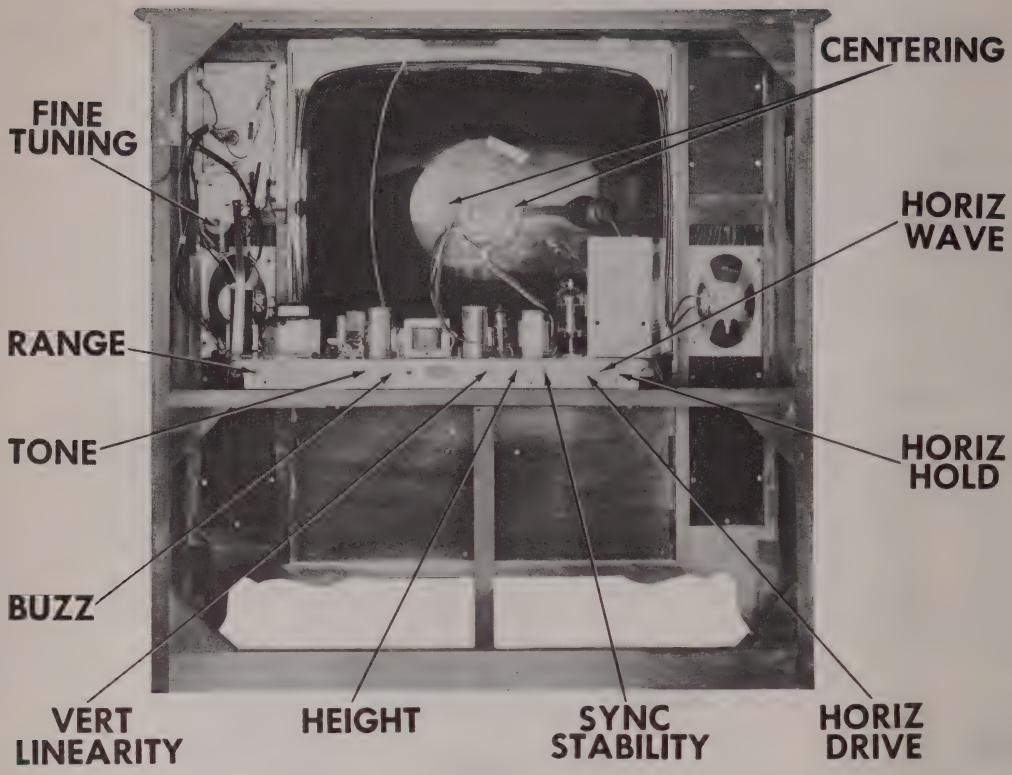
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6BZ6 | 457K | 47Ω | .1Ω | 0Ω | †3500Ω | †3500Ω | 0Ω | | |
| V2 | 6BZ6 | 450K | 47Ω | .1Ω | 0Ω | †3500Ω | †3500Ω | 0Ω | | |
| V3 | 6CB6A | 0Ω | 180Ω | 0Ω | .1Ω | †3000Ω | †3000Ω | 0Ω | | |
| V4 | 6U8 | †9000Ω | 6Ω | †35K | .1Ω | 0Ω | †35K | 2200Ω | 0Ω | 3900Ω |
| V5 | 6BQ5 | NC | 1meg | •100Ω | .1Ω | 0Ω | NC | †3600Ω | NC | †2500Ω |
| V6 | 6BU8 | †2500Ω | †6800Ω | 600K | 0Ω | .1Ω | †42K | •†250K | †70K | †2.2meg |
| V7 | 6BN6 | •300Ω | 3.5Ω | 0Ω | .1Ω | †7200Ω | 6Ω | †330K | | |
| V8 | 6BQ5 | •0Ω | NC | 270Ω | 0Ω | .1Ω | NC | †1000Ω | NC | †510Ω |
| V9 | 6CG7 | †12K | 350K | 0Ω | 0Ω | .1Ω | •†1.1meg | •600K | 0Ω | 0Ω |
| V10 | 6EM5 | †40Ω | TP | 330K | 0Ω | .1Ω | NC | 470Ω | NC | †430Ω |
| V11 | 6CG7 | †56K | 430K | 0Ω | 0Ω | .1Ω | †40Ω | 1.5meg | 410K | 0Ω |
| V12 | 6DQ6B | TP | 0Ω | TP | †15K | 1meg | TP | .1Ω | 0Ω | TOP CAP †16Ω |
| V13 | 6DE4 | NC | NC | ¶ | NC | †40Ω | TP | .1Ω | 0Ω | |
| V14 | 1K3GT | PINS 1 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP †335Ω |
| V15 | Z3CP4 | 0Ω | 1meg | †10meg | †100K | NC | NC | •300K | .1Ω | |
| V201 | 6ER5 | 0Ω | 1meg | 0Ω | .1Ω | †7800Ω | 0Ω | 0Ω | | |
| V202 | 6CG8A | 4700Ω | †7500Ω | 0Ω | 0Ω | .1Ω | †7800Ω | †2500Ω | 0Ω | 223K |
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
† MEASURED FROM PIN 3 OF V13.

NC NO CONNECTION
TP TIE POINT




## TUBE PLACEMENT CHART




## CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune in a station and adjust the Horizontal Hold until the picture is just about to tear out of sync as can be seen at the top of the picture.

Turn the Contrast Control fully counterclockwise and the Brightness Control clockwise so that the picture appears washed out. Turn the Horizontal Drive Trimmer (B1) clockwise until white vertical bars (drive lines) appear in the left center portion of the raster, then counterclockwise until the white bars just disappear.

Connect the Vertical Amplifier of the scope to TP-4. Low side to chassis. Adjust the Horizontal Waveform Slug (B2) until the round and sharp peaks of the waveform are equal in amplitude. See Fig. 4. Keep the picture in sync during this adjustment.

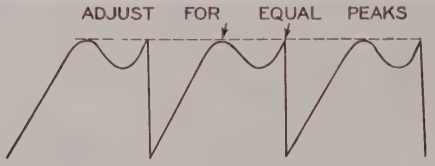



FIG. 4

## DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 wood screws holding rear cover.
2. Remove 5 push-on type knobs in front of cabinet.
3. Remove antenna leads, speaker leads, picture tube socket, yoke plug, and high voltage lead.
4. Remove 4 screws holding control panel.
5. Remove 4 chassis bolts.
6. Remove chassis.

PICTURE TUBE REMOVAL

It is necessary to remove the chassis for picture tube removal.

PHOTOFACT® Folder with CIRCUITRACE®

**MOTOROLA CHASSIS
TS-574, TS-574Y**

## IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MOTOROLA CHASSIS
TS-574, TS-574Y

MODEL 23SF3W-FM

MOTOROLA CHASSIS
TS-574, TS-574Y



**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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PHOTOFACT® Folder with CIRCUITRACE®

# MOTOROLA CHASSIS TS-574, TS-574Y

MOTOROLA CHASSIS TS-574, TS-574Y

MODEL 23SF3W-FM

| TRADE NAME | MOTOROLA MODELS | TV Chassis | FM-AM Tuner Chassis | Amp. Chassis | VHF Tuner | UHF Tuner |
|---|---|---|---|---|---|---|
| | Y23SF3M, W; Y23SF4CW | TS-574Y | | HS-874A | OPTT-130Y | TT-601 |
| TV Chassis Codes: A-00 thru A-03 | 23SF3M, W; 23SF4CW | TS-574 | | HS-874A | OPTT-130 | |
| FM-AM Tuner Chassis Codes: A thru H | Y23SF3M-FM, Y23SF3W-FM, Y23SF4CW-FM | TS-574Y | HS-822 | HS-874A | OPTT-130Y | TT-601 |
| | 23SF3M-FM, 23SF3W-FM, 23SF4CW-FM | TS-574 | HS-822 | HS-874A | OPTT-130 | |
| | HK-45 | | HS-822 | | | |

MANUFACTURER: Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TUBES: TV: VHF - Seventeen UHF - Eighteen FM-AM Tuner: Nine Amp.: Six
RATING: TV: 180 Watts, 1.65 Amp. @ 117 Volts AC
FM-AM Tuner: 22 Watts, .2 Amp. @ 117 Volts AC
Amp.: 79 Watts, .75 Amp. @ 117 Volts AC
POWER SUPPLY: 110-120 Volts AC, 60 Cycle
TUNING RANGE: TV: Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)
FM-AM Tuner: FM-88 to 108MC (10.7MC IF) BC-535 to 1620KC (455KC IF)

FOR SERVICE INFORMATION ON RECORD CHANGER VM39RC - SEE SIMILAR UNIT - PHOTOFACT SET 436 FOLDER 18

## SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 6 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE

TV: A 5 Amp. Fuse (AC Line), a ½ Amp. Fuse (Sweep), and a Fuse Wire (Fil.) is used for receiver protection.

Amplifier: A 3 Amp. Fuse (AC Line) is used for Amplifier protection.

TUNER OSCILLATOR ADJUSTMENTS

The VHF Oscillator may be touched up by removing control panel supporting tuner.

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

The focus may be varied by connecting the lead from pin 6 of the picture tube to various voltage points. (For location, see "Tube Placement Chart".)

SYNC STABILITY

Sync stability may be varied by means of a Noise Gate control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency (Bl). For location, see "Tube Placement Chart".

WIDTH

The width may be varied by a Horiz. Size Control. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

PINCUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible. Position the magnets so that all sides are straight.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KC954

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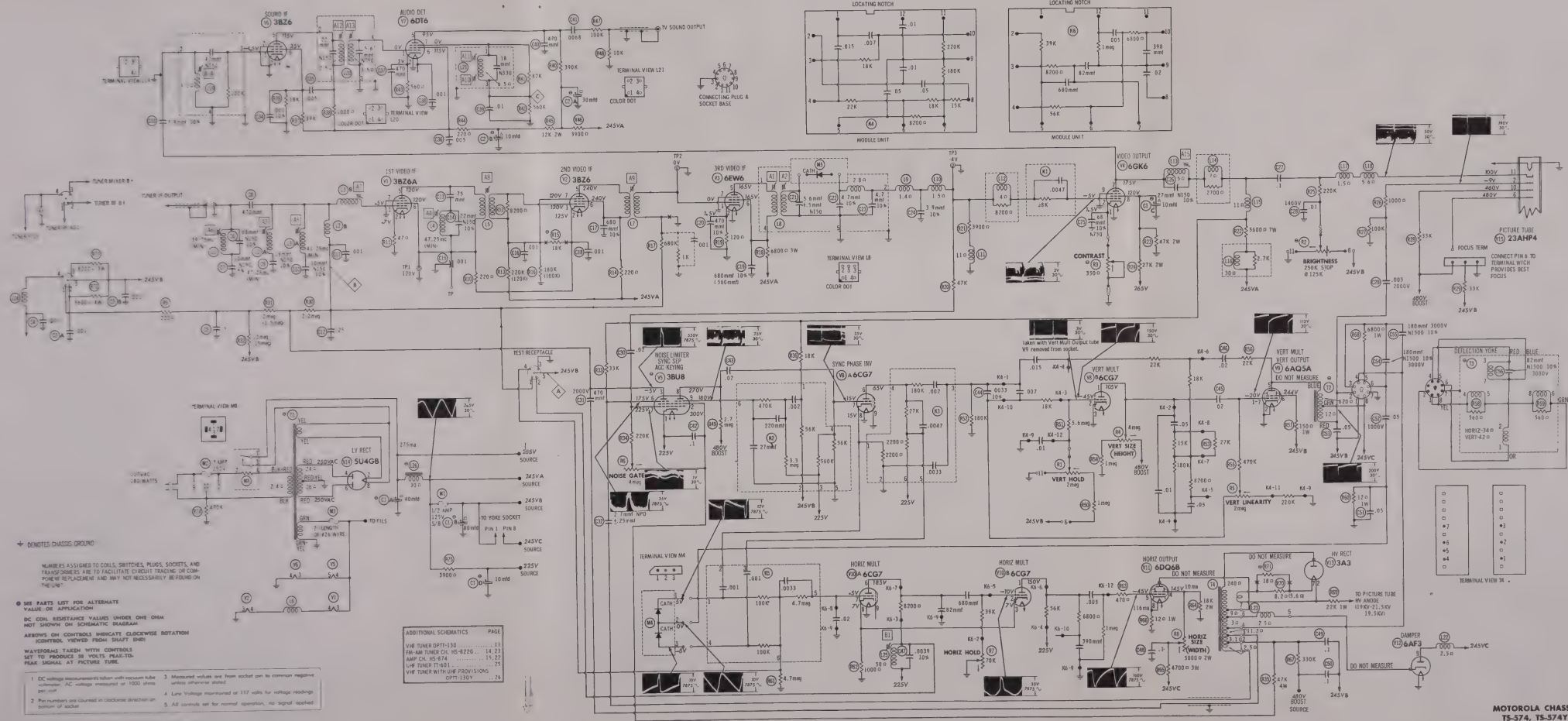
SET 548 FOLDER 2


SOUND IF
AUDIO DET
TV SOUND OUTPUT
LOCATING NOTCH
MODULE UNIT
1ST VIDEO IF
2ND VIDEO IF
3RD VIDEO IF
VIDEO OUTPUT
CONTRAST
BRIGHTNESS
PICTURE TUBE
FOCUS TERM
DEFLECTION YOKE
NOISE LIMITER SYNC SEP AGC KEYING
SYNC PHASE INV
VERT MULT
VERT OUTPUT
VERT SIZE (HEIGHT)
VERT HOLD
VERT LINEARITY
HORIZ MULT
HORIZ HOLD
HORIZ OUTPUT
HORIZ SIZE (WIDTH)
HV RECT
DAMPER
LV RECT
TEST RECEPTACLE
TERMINAL VIEW M8
TERMINAL VIEW M4
TERMINAL VIEW T4
TERMINAL VIEW L21
TERMINAL VIEW L20
TERMINAL VIEW L8
CONNECTING PLUG & SOCKET BASE
COLOR DOT
TO YOKE SOCKET
DO NOT MEASURE
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE CHASSIS
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
ADDITIONAL SCHEMATICS PAGE
VHF TUNER OPTT-130 ..... 11
FM-AM TUNER CH. HS-822G.. 14, 23
AMP CH. HS-874 ..... 15, 22
UHF TUNER TT-901 ..... 25
VHF TUNER WITH UHF PROVISIONS OPTT-130Y ..... 26
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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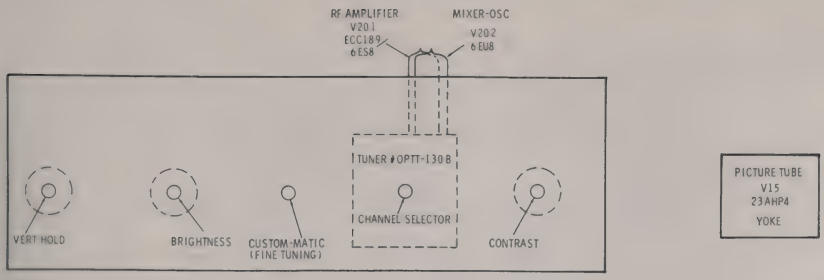
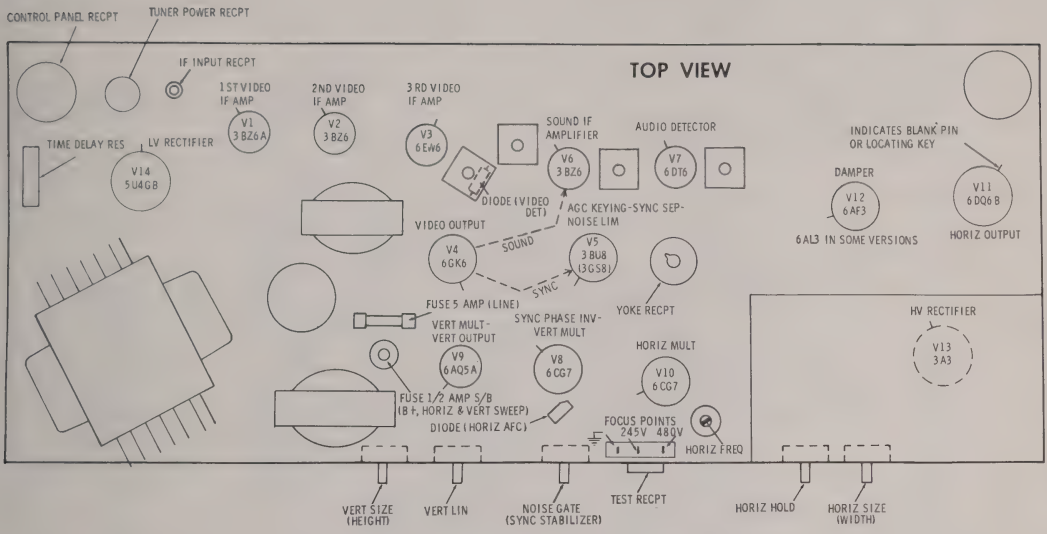
MOTOROLA CHASSIS TS-574, TS-574Y

# TUBE PLACEMENT CHART




# TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound V14, Fuse (Line), Thermal Sw., Fil. Wire

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V15, Fuse (Sweep)
No vertical deflection V8, V9
Poor vert. linearity or foldover V8, V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, V14
Vert. off freq. V8, V9
Horiz. off freq. V10, Diode (Horiz. AFC)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V6, V7 (See Amp. Chassis)
Overloaded picture V5

SYNC FAILURE
No vert. sync V5, V8
No horiz. sync V5, V8
No vert. or horiz. sync V5, V8

# TV ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #9050L, 9150
WALSCO #2521

VIDEO IF ALIGNMENT

Remove the yoke plug to eliminate RF interference from the horizontal sweep circuit. Connect a 1500Ω 50 watt resistor from point Ⓐ to Chassis. (CAUTION: Point Ⓐ has B plus voltage on it.)
Disable the tuner oscillator by grounding the grid (pin 2) of oscillator.
Set the Noise Gate Control fully counterclockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect the negative lead of a 6 volt bias supply to point Ⓑ. Positive to chassis.
Maintain between 2 and 5 volts peak to peak on the scope except where otherwise noted in the procedure.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | .001mfd | High side to TP-2. Low side to chassis. | 44.0MC (10MC Swp.) | 45.75MC | 13 | Vert. Amp. thru 47K to TP-3. Low side to chassis. (Across Video Det. Load). | A1, A2 | Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. |
| 2. | Direct | High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis. | " | 47.25MC | " | " | A3, A4 | Increase scope gain. Remove bias if necessary. Adjust to place marker in trap notch as in Fig. 2. Tune slug at end of coil away from chassis. |
| 3. | " | " | " | 41.25MC | " | " | A5 | Adjust to place marker in trap notch as in Fig. 2. Tune slug at end of coil nearest chassis. |
| 4. | " | " | " | 39.75MC | " | " | A6 | Adjust to place marker in trap notch as in Fig. 2. Tune slug at end of coil away from chassis. |
| 5. | " | " | " | 39.75MC<br>41.25MC<br>44.0MC<br>45.75MC<br>47.25MC | " | Vert. Amp. to TP-1. Low side to chassis. | Mixer Plate Coil & A7 | Set scope for 3 volts peak to peak. Restore 6 volt bias. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. The Mixer Plate Coil affects the center peak and A7 affects the two outside peaks. Tune slugs at end of coils away from chassis. If a suckout (trap effect) occurs, detune A8 to remove. |
| 6. | " | " | " | 42.25MC<br>45.75MC | " | Vert. Amp. thru 47K to TP-3. Low side to chassis. (Across Video Det. Load). | A8, A9 | Adjust A8 to place 42.25MC marker at 50% on curve as in Fig. 4. Adjust A9 to place 45.75MC marker at 50% on other side. Tune slugs to end of coil nearest chassis. If necessary, retouch Mixer Plate Coil to correct tilt. Retouch A8 and A9 for correct response. |

SOUND IF ALIGNMENT

Tune in a strong TV signal and adjust all controls for normal picture and sound.
Connect the DC probe of a VTVM to point Ⓒ. Common to chassis. Adjust A10 for maximum deflection choosing the one of two peaks that produce the highest voltage. While listening to the sound, retouch A10 for maximum sound with MINIMUM distortion.
The top slug (A11) is a preset slug which is set near the top of the coil form and left there.
Change to a very weak signal (this may be done by loosely coupling the antenna lead to the antenna terminals) that produces a hiss in the sound. Adjust A12 and A13 for maximum sound and MINIMUM distortion. Adjust A14 for maximum undistorted sound. If sound is not clear at this point, repeat the above procedure as necessary.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and turn the Contrast fully clockwise.
Adjust the Fine Tuning until a strong 4.5MC beat pattern is visible.
Adjust A15 to find the two points at which the beat pattern is just noticeable on the screen. Tune the slug to the center of these two points. (Use the MINIMUM amount of inductance that will result in no apparent beat pattern.)

FIG. 1

FIG. 2

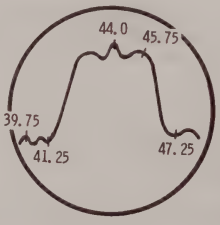


FIG. 3

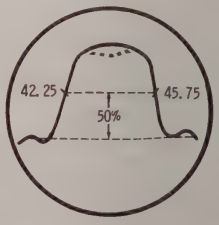
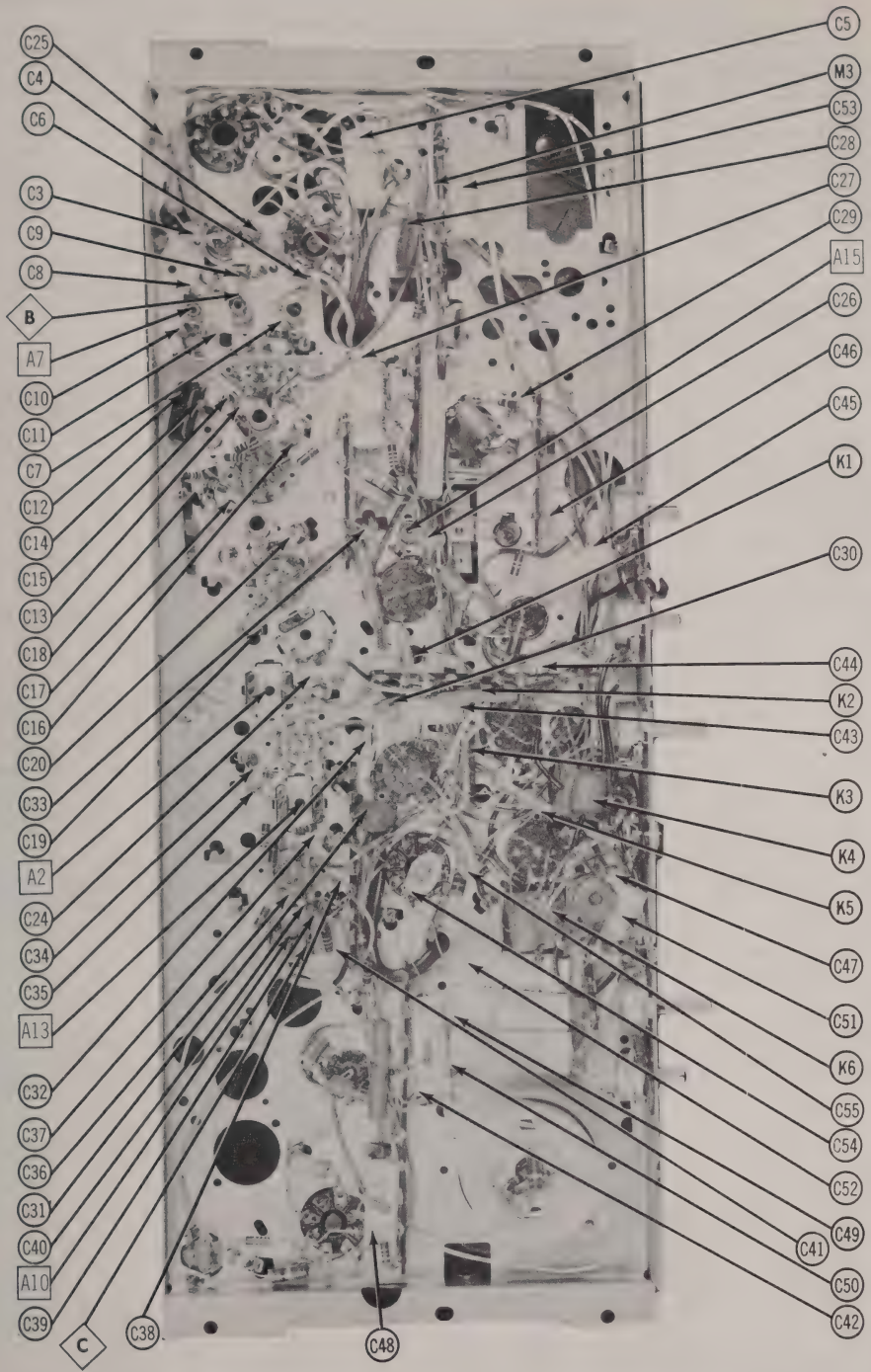


FIG. 4

## ALIGNMENT IDENTIFICATION PHOTOS PAGE 5, 27




TV CHASSIS BOTTOM VIEW - CAPACITOR, MISC., ALIGN. IDENT.

# TV PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | GENERAL ELECTRIC * USE | GENERAL ELECTRIC * TYPE | RAYTHEON * USE | RAYTHEON * TYPE | SYLVANIA * USE | SYLVANIA * TYPE |
|---|---|---|---|---|---|---|
| V1 | 1st Video IF Amplifier | 3BZ6A | | | | |
| V2 | 2nd Video IF Amplifier | 3BZ6 | | | | |
| V3 | 3rd Video IF Amplifier | 6EW6 | V8 | Sync Phase Inverter - Vert. Mult. | | 6CQ7 |
| V4 | Video Output | 6GK5 | V9 | Vert. Mult. - Vert. Output | | 6AQ5A |
| V5 | AGC Keying - Sync Sep. - Noise Limiter | 3BU8 (3GS8) * | V10 | Horiz. Mult. | | 6CQ7 |
| V6 | Sound IF Amplifier | 3BZ6 | V11 | Horiz. Output | | 6DQ6B |
| V7 | Audio Detector | 6UT6 | V12 | Damper | | 6AF3 † |
| | | | V13 | 4V Rectifier | | 3A3 |
| | | | V14 | LV Rectifier | | 5U4GB |

* Alternate
† Some versions may use 6AL3 in this application.

## PICTURE TUBE

| ITEM No. | REPLACEMENT DATA: MOTOROLA PART No. | GENERAL ELECTRIC PART No. | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| V15 | 23AHP4 | | 23AHP4 ① | | 23AHP4 ② | ① Aluminized<br>② Silver Screen "85" |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING: CAP. | RATING: VOLT. | REPLACEMENT DATA: MOTOROLA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 40 | 350 | 23KT47541 | AFH4-05-40 | D98L3 | WP49.51 | TMQ-4322 | TVL-4710. 2 | Note 1 |
| B | 80 | 300 | | | | | | | |
| C | 40 | 300 | | | | | | | |
| D | 10 | 300 | | | | | | | |
| C2A | 20 | 350 | 23KT38750 | AFH3-108 | CGB10 | WP236.63 | TMT-3368 | TVL-3635.5 | Note 2 |
| B | 40 | 300 | | | | | | | |
| C | 20 | 25 | | | | | | | |

Note 1. Some versions may use 4 section, Pt. #23KT54011 (80mfd ② 350V for C1A, 80mfd ② 300V for C1B, 10mfd ③ 300V for C1C, and 10mfd ③ 300V for C1D.
Note 2. C2C not used.

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA: AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C3A | .001 | * | BPD-222001 | DD8-102 | BYD8DD1 | CCD-102 | B2X2I0 | 5HK-2D10 |
| B | .001 | * | | | | CCD-102 | | |
| C | .001 | | BPD-001 | DD-101 | BYA10DI | CCD-102 | B-210 | 5HK-D10 |
| C5 | 3 | 100V | P2S6N-S | | CUB2P1 | 1DP-4-504 | GEM-305 | 3TM-P5 |
| C6 | 68 | N150 10% | | | | * | | 10TCP-Q68 |
| C7 | 10 | N150 5% | #2IR125698 | | | * | | 10TCP-Q10 |
| C8 | 470 | | DL-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C9 | 18 | N150 10% | #2IR130578 | | | * | | 10TCS-Q18 |
| C10 | 10 | N150 10% | #2IR125698 | | | * | | 10TCS-Q10 |
| C11 | .001 | | BPD-001 | DD-101 | BYA10DI | CCD-101 | B-210 | 5HK-D10 |
| C12 | 25 | 50V | P2S6N-25 | | CUB2P25 | 1DP-B-254 | GEM-3025 | 2TM-P25 |
| C14 | 22 | N150 10% | #2IR130539 | | | * | | 10TCP-Q22 |
| C15 | .001 | | FF-001 | MFT-1000 | | CCF-102 | CT380A | |
| C16 | .001 | | BPD-001 | DD-102 | BYA10DI | CCD-102 | B-210 | 5HK-D10 |
| C17 | 680 | | DD-681 | 5S5T68 | BYA10T68 | CCD-681 | GP368 | 5TS-T68 |
| C18 | .001 | | BPD-001 | DD-102 | BYA10DI | CCD-102 | B-210 | 5HK-D10 |
| C19 | 680 | 10% (560mmf) † | DD-681 | 5S5T68 | | CCD-681 | GP368 | 10TS-T68 |
| C20 | 470 | 10% | DD-471 | 5S5T47 | BYA10T47 | CCD-471 | GP347 | 10TS-T47 |
| C21 | 5.6 | N150 ± .5mmf | #2IR129194 | | | * | | |
| C22 | 4.7 | 10% | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C23 | 4.7 | 10% | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCC-V47 |
| C24 | 2.9 | 10% | | | | C10V4C | | | 10TCC-V39 |
| C25 | 68 | N750 10% | | N750-DI 68 | DYN-68 | C10G68U | CCTN-680 | CN7-468 | 10TCU-Q68 |
| C26 | 27 | N150 10% | #2IR119696 | | | * | | | 10TCP-Q27 |
| C27 | .1 | 400V | | P488N-1 | | DF-104 | CUB4P1 | 6DP-4-103 | GEM-401 |
| C28 | .01 | 1400V | | DAC-27 | | DD8-103 | HVE16S | 16DP-3-103 | UAC-1I0 |
| C29 | .005 | 2000V | | | | D20K-502 | HVC20D5 | 3CCD-502 | 2HV-347 |
| C30 | .02 | | | BPD-02 | | DD-203 | BYB5E3 | CCD-203 | 5HK-D50 |
| C31 | 470 | 2000V | | HVD-30-470 | | DD20-470 | HVB20T47 | 3CCD-471 | 2HV-347 |
| C32 | 2.7 | N750 ± .25mmf | | | | | C10V3C | | 10TCC-V27 |
| C33 | 3.9 | 10% | | | | | C10V4C | | 10TCC-V39 |
| C34 | .001 | 10% | | DI-1000 | | DD-102 | BYA10DI | CCD-103 | GP310 |
| C35 | .005 | | | BPD-005 | | DD-502 | BYA10D5 | CCD-502 | B-350 |
| C36 | .005 | | | BPD-005 | | DD-502 | BYA10D5 | CCD-502 | B-350 |
| C37 | 470 | | | DL-470 | | DD-471 | BYA10T47 | CCD-471 | B-347 |
| C38 | .001 | | | BPD-001 | | DD-102 | BYA10DI | CCD-102 | B-210 |
| C39 | .01 | | | BPD-01 | | DD-103 | BYA10E | CCD-103 | B-310 |
| C40 | 470 | | | DL-470 | | DD-471 | BYA10T47 | CCD-471 | B-347 |
| C41 | .0068 | | | BPD-0068 | | DD-682 | BYA10D68 | CCD-682 | B-268 |
| C42 | .1 | 400V | | P488N-1 | | DF-104 | CUB4P1 | 6DP-3-104 | GEM-401 |
| C43 | .02 | 600V | | P688N-02 | | DD-203 | CUB6E2 | 6DP-2-203 | GEM-612 |
| C44 | .0033 | 600V 10% | | V94C4D33-10% | | | PMH2D33 | 6DP-1-332 | GFM-11233 |
| C45 | .02 | 600V | | P688N-02 | | DD-203 | CUB6E2 | 6DP-2-203 | GEM-1612 |
| C46 | .02 | | | BPD-02 | | DD-203 | BYB5E2 | CCD-203 | B-210 |
| C47 | .0039 | 600V 10% | | P684CM-0039 | | | DPM3E39 | 6DP-1-392 | JL-239 |
| C48 | .1 | 400V | | P488N-1 | | DF-104 | CUB4P1 | 6DP-3-104 | GEM-401 |
| C49 | .1 | 400V | | P688N-1 | | DF-104 | CUB4P1 | 6DP-4-104 | GEM-601 |
| C50 | .1 | 600V | | P688N-1 | | DF-104 | CUB6P1 | 6DP-4-104 | GEM-601 |
| C51 | .05 | 400V | | P488N-05 | | DD-503 | CUB4E5 | 6DP-3-503 | GEM-415 |
| C52 | .05 | 1000V | | P1088N-05 | | | CUB10E5 | 16DP-5-503 | GEM-1015 |
| C53 | .05 | 600V | | P688N-05 | | DD-503 | CUB6E5 | 6DP-3-503 | GEM-615 |
| C54 | 180 | 3000V N1500 10% | #2IR129134 | | | | | | |
| C55 | 180 | 3000V N1500 10% | #2IR129134 | | | | | | |
| C56 | 82 | 3000V N750 10% | #2IR129150 | | | | | | |

* Motorola Part Number
† Value used in chassis stamped A00 thru A02.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer..

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: MOTOROLA PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 2meg | ½ | 18D6503A06 | B-75 | A47-2meg-S | QU-139 | U56 | Vert. Hold |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R2A | 250K | ½ | 18D6503A05 | B-43 | A47-250K-S | QU-238 | U415 | Brightness |
| B | 125K Resp | | ① | * | * | * | * | |
| | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R3A | 350Ω | ½ | 18D6503A07 | B-4 | A47-500-S | QU-105 | U3 | Contrast |
| B | Shaft | | ① | Not Req. | FS-3 | Not Req. | Not Req. | |
| R4 | 4meg | ½ | 18T4T4534 | TT-56 | B47-5meg-S | HLC-4 | PTA56L | Vert. Size (Height) |
| R5 | 2meg | ½ | 18T4T4533 | TT-75 | B47-2meg-S | HLC-3 | PTA28L | Vert. Linearity |
| R6 | 4meg | ½ | 18K740894 | TT-56 | B47-5meg-S | HLC-4 | PTA56L | Noise Gate (Sync Stabilizer) |
| R7A | 70K | ½ | 18T4T4535 | TT-35 | B47-100K-S | BU-125 | PTA15L | Horiz. Hold |
| B | Shaft | | | Not Req. | Not Req. | TM-4 | Not Req. | |
| R8A | 5000Ω | 2(WW) | 17K754149 | WH-502 | A43-5000 | WU-114 | PFL-5K | Horiz. Size (Width) |
| B | Shaft | | | Not Req. | FXB-1/4 | SE3 | Not Req. | |

* Use 120K Resistor in series with left hand terminal, viewed shaft end terminals down.
① Chassis TS-574Y uses Concentric Dual 350Ω Contrast, 250K Brightness w/135K Ohm (Part #18D6503A07).
② Early versions may use 150K Brightness with 250K series Resistor.

## RESISTORS

All wattages 1/2 watt, or less, unless-otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | REPLACEMENT DATA: WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R9 | 220Ω | | | |
| R10 | 220Ω | | | |
| R11 | 47Ω | | | |
| R12 | 8200Ω | | | |
| R13 | 220K | | | (120K) * |
| R14 | 220Ω | | | |
| R15 | 18K | | | Note 1 |
| R16 | 180K | | | (100K) * |
| R17 | 680K | | | |
| R18 | 6800Ω 3W | PW3-6800 | 3G-6800 | |
| R19 | 120Ω | | | |
| R20 | 47K | | | |
| R21 | 3900Ω | | | |
| R22 | 5600Ω 7W | PW7-5600 | 7W-SQ-5600 | |
| R23 | 47K 2W | | | |
| R24 | 47K 2W | | | |
| R25 | 220K | | | |
| R26 | 1000Ω | | | |
| R27 | 100K | | | |
| R28 | 33K | | | |
| R29 | 33K | | | |
| R30 | 2.2meg | | | |
| R31 | 2.0meg | | | (1.5meg) * |
| R32 | 12meg | | | (18meg) * |
| R33 | 33K | | | |
| R34 | 220K | | | |
| R35 | 47K 4W | PW4-47K | 4W-SQ-47K | |
| R36 | 18K | | | |
| R37 | 39K | | | |
| R38 | 1000Ω | | | |
| R39 | 18K | | | |
| R40 | 390K | | | |
| R41 | 82K | | | |
| R42 | 560K | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | REPLACEMENT DATA: WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R43 | 560Ω | | | |
| R44 | 220Ω | | | |
| R45 | 12K 2W | | | |
| R46 | 3300Ω | | | |
| R47 | 100K | | | |
| R48 | 10K | | | |
| R49 | 2.7meg | | | |
| R50 | 1meg | | | |
| R51 | 5.6meg | | | |
| R52 | 180K | | | |
| R53 | 27K | | | |
| R54 | 1meg | | | |
| R55 | 470K | | | |
| R56 | 22K | | | |
| R57 | 1500 1W | | | |
| R58 | 560Ω | | | |
| R59 | 560Ω | | | |
| R60 | 120 1W | | | |
| R61 | 4.7meg | | | |
| R62 | 1000Ω | | | |
| R63 | 470Ω | | | |
| R64 | 18K 2W | | | |
| R65 | 4700Ω 3W | PW3-4700 | 3G-4700 | |
| R66 | 12Ω 1W | | | |
| R67 | 220K | | | |
| R68 | 6800Ω 1W | | | |
| R69 | 22K 1W | | | |
| R70 | 8.2Ω | | | Note 2 |
| R71 | 18Ω | | | Note 2 |
| R72 | 5600Ω 4W | PW5-5600 | 5W-SQ-5600 | |
| R73 | 8200Ω 3W | PW3-8200 | 3W-SQ-8200 | |
| R74 | 470K | | | |
| R75 | 3900Ω | | | |

Note 1. Not used in Chassis Codes A-00 and A-01. * Value used in Chassis Codes A-00 and A-01.
Note 2. Chassis Coded A-00 use 9.2Ω for R70 (R71 not used.) Some versions of Chassis Coded A-01 thru A-03 use single 8.5Ω for R70 and R71.

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | MOTOROLA PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Video Output Grid | .0047mfd, 68K | 51K744975 | |
| K2 | Sync Sep. Grid, Plate | 27mmf, 220mmf, .002mfd, 56K, 56K, 470K, 560K, 3.3meg | 51K747693 | Centralab PC-356<br>Sprague HN-5 |
| K3 | Vert. Integrator | .003mfd, .0033mfd, .0047mfd, 220Ω, 330Ω, 27K, 180K | 51B747379 | Centralab PC-355 |
| K4 | Vert. Sweep | .007mfd, .01mfd, .01mfd, .015mfd, .06mfd, .06mfd, 820Ω, 15K, 18K, 18K, 22K, 180K, 220K | 51K753673 | |
| K5 | Horiz. AFC Network | .001mfd, .001mfd, .0033mfd, 100K, 100K, 4.7meg | 51B747561 | Centralab PC-357<br>Sprague F-4 |
| K6 | Horiz. Sweep | 82mmf, 390mmf, 680mmf, .002mfd, .02mfd, 6800Ω, 8200Ω, 39K, 56K, 1meg | 51K753806 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA: MOTOROLA PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1 | 39.75MC Trap | 24K754048 | TV-153 | 6325 | RTC-8556 | T28 | ①Includes Complete Assembly<br>②Includes 820Ω Resistor<br>③Includes 2700Ω Resistor |
| L2A | 47.25MC Trap | 24K754050 | | | | | |
| B | RF Choice | | | | | | |
| L3A | 41.25MC Trap | 24K754798 | | | | | |
| B | Int Video IF | | | | | | |
| L4 | 47.25MC Trap | 24K754785 | TV-153 | 6325 | RTC-8556 | T28 | |
| L5 | 2nd Video IF | 24K754787 | TV-130 | 6219 | RTC-8561 | T27 | |
| L6 | Fil. Choke (1.3ah) | 24K730391 | BC-562 | 9804 | RTC-8516 | T856 | |
| L7 | 3rd Video IF | 24K751248 | TV-130 | 6219 | RTC-8561 | T27 | |
| L8A | 4th Video IF | 24K750723 ① | | | | | |
| B | RF Choke (8.5ah) | 24K119859 | BC-566 | 4611 | RTC-8521 | T960 | |
| L9 | RF Choke (1.8ah) | 24K746772 | BC-562 | 9310-18 | RTC-8516 | T856 | |

## COILS (RF-IF) (cont)

| ITEM No. | USE | REPLACEMENT DATA: MOTOROLA PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L10 | RF Choke (8.5ah) | 24K119859 | BC-566 | 4611 | RTC-8521 | T960 | |
| L11 | Peaking (300uh) | 24C748508 | TV-303 | 6174 | RTC-8592 | T334 | |
| L12 | Peaking (100uh) | 24K754230 ② | TV-194 | 6113 | RTC-8574 | T341 | |
| L13 | 4.5MC Trap | 24K739290 | TV-121 | 1469 | RTC-8502 | T250 | |
| L14 | Peaking (240uh) | 24K752063 ③ | TV-193 | 6181 | RTC-8508 | T346 | |
| L15 | Peaking (500uh) | 24C749508 | TV-303 | 6174 | RTC-8592 | T334 | |
| L16 | Peaking (1400uh) | 24K749668 ③ | BC-514 | 4864 | RTC-8533 | T875 | |
| L17 | RF Choke (8.5ah) | 24K119859 | BC-566 | 4611 | RTC-8521 | T960 | |
| L18 | Peaking (100uh) | 24K749574 | TV-194 | 6113 | RTC-8574 | T341 | |
| L19 | 1st Sound IF | 24K754083 | TV-154 | 1470-A | RTC-8604 | T249 | |
| L20 | 2nd Sound IF | 24K754061 | TV-113 | 8203 | RTC-8545 | T235 | |
| L21 | Quadrature | 24K751492 | TV-154 | 1451 | RTC-8606 | T248 | |
| L22 | RF Choke (7.5uh) | 24K747071 | BC-565 | 4611 | RTC-8521 | T959 | |
| L23 | RF Choke (7.5uh) | 24K747171 | BC-565 | 4611 | RTC-8521 | T959 | |
| L24 | Fil. Choke (1.5uh) | 24K747281 | BC-563 | 4604 | RTC-8516 | T856 | |

## COILS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: MOTOROLA PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L25 | Horiz. Stabilizer | 24K743426 | TV-163 | 6210 | RTC-8622 | HS-5 | WLC-25 | T103 | |

## FILTER CHOKE

| ITEM No. | RATINGS: CURRENT (Measured) | RATINGS: DC RES. | RATINGS: INDUCTANCE (@ CURRENT) | REPLACEMENT DATA: MOTOROLA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L26 | .270A | 30Ω | .93 Hy. | 25K751752AY① | C-2996 | C-2343 | 26C93 | C-34X | ① Alt. #25K751752 |

## TRANSFORMER (POWER)

| ITEM No. | RATING | REPLACEMENT DATA: MOTOROLA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T1 | PRI: SEC 1: 117V ② 500VCT 1.65A ③ .275A DC; SEC 2: 6V ③ 3A<br>SEC 3: 6.3V ③ 8A; SEC 4; SEC 5 | 25D6563A01-D① | | | | | ① Alt. #25K752869 |

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA: MOTOROLA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T2 | Vert. Output | 25K744974-AT | A-2855 | VO-108 | 26S73 | A-133X | |
| T3 | Alt. Vert. Output | 25K744974 | | | | | |
| | Yoke (Horiz. .24Ma) (90°) (Vert. 40MA) | 24D743765-AE ① ② | MDF-97 | DY-32A | Y-45 ① ③ ④ | Y-45-2 | |
| | Alt. Yoke | 24D743765 † | | | | | |
| | Rear Cover and Centering Device | 59C72145 | | | | | |
| | Yoke Clamp | 42A736175 | | | | | |
| T4 | Horiz. Driver | 24K745397-W | HVO-142 | | FLY-185 | D-173 | |
| | Alt. Horiz. Output | 24K754273 | | | | | |
| | Primary Coil | 24K754272 | | | | | |
| | Secondary Coil | 24K754108 | | | FLY-186 | D-178 | |

① Use original plug, rear cover and centering device, and core clamp assembly. Connect same as original.
② Remove jumper across yoke terminals #5 and #4.
③ Remove jumper from across yoke terminals #2 and #6.
④ Remove horizontal damping capacitor from across yoke terminals #1 and #2. Connect across yoke terminals #3 and #7.
† Includes cable and plug.

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA: MOTOROLA PART No. FUSE | MOTOROLA PART No. HOLDER | LITTELFUSE PART No. FUSE | LITTELFUSE PART No. HOLDER | BUSS PART No. FUSE | BUSS PART No. HOLDER |
|---|---|---|---|---|---|---|---|---|
| M1 | N | 1A 125V S/B | 85K751794 | 9K750975 | 333.500 (N 1A 250V S/B) | 346009 | MTH | HN 1 - 3/4 |
| M2 | 3AG | 3A 250V | 85A743612 | 3IA737466 | 312005 (3AG 5A 250V) | 357001 | MTH5 | 4405 |
| M3 | 2" length of #26 wire | | | | | | | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA: MOTOROLA PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | NOTES |
|---|---|---|---|---|---|
| M4 | | 48K754153 * | 6GD1 * | 1N295 ◊ | * Dual Selenium, Series Connected Type<br>◊ Video Detector, Crystal Diode, Clip-in Type |
| M5 | | 48K754549 * | | | |

# TV PARTS LIST AND DESCRIPTIONS (Continued)

## MISCELLANEOUS

| ITEM No. | PART NAME | MOTOROLA PART No. | NOTES |
|---|---|---|---|
| M6 | Tuner (OPTT-130) | 1U65029A13 | VHF, Complete, Used in Chassis TS-574 |
| | Tuner (OPTT-130Y) | 1U65029A14 | VHF with UHF Provisions, Complete, Used in Ch. TS-574Y |
| | Tuner (TT-601) | | UHF, Used in Ch. TS-574Y |
| M7 | Magnet | 48B737365 | Anti Pincushion |
| M8 | Thermostat Assy. | 6C746780 | Includes Time Delay Resistor and Thermal Switch |

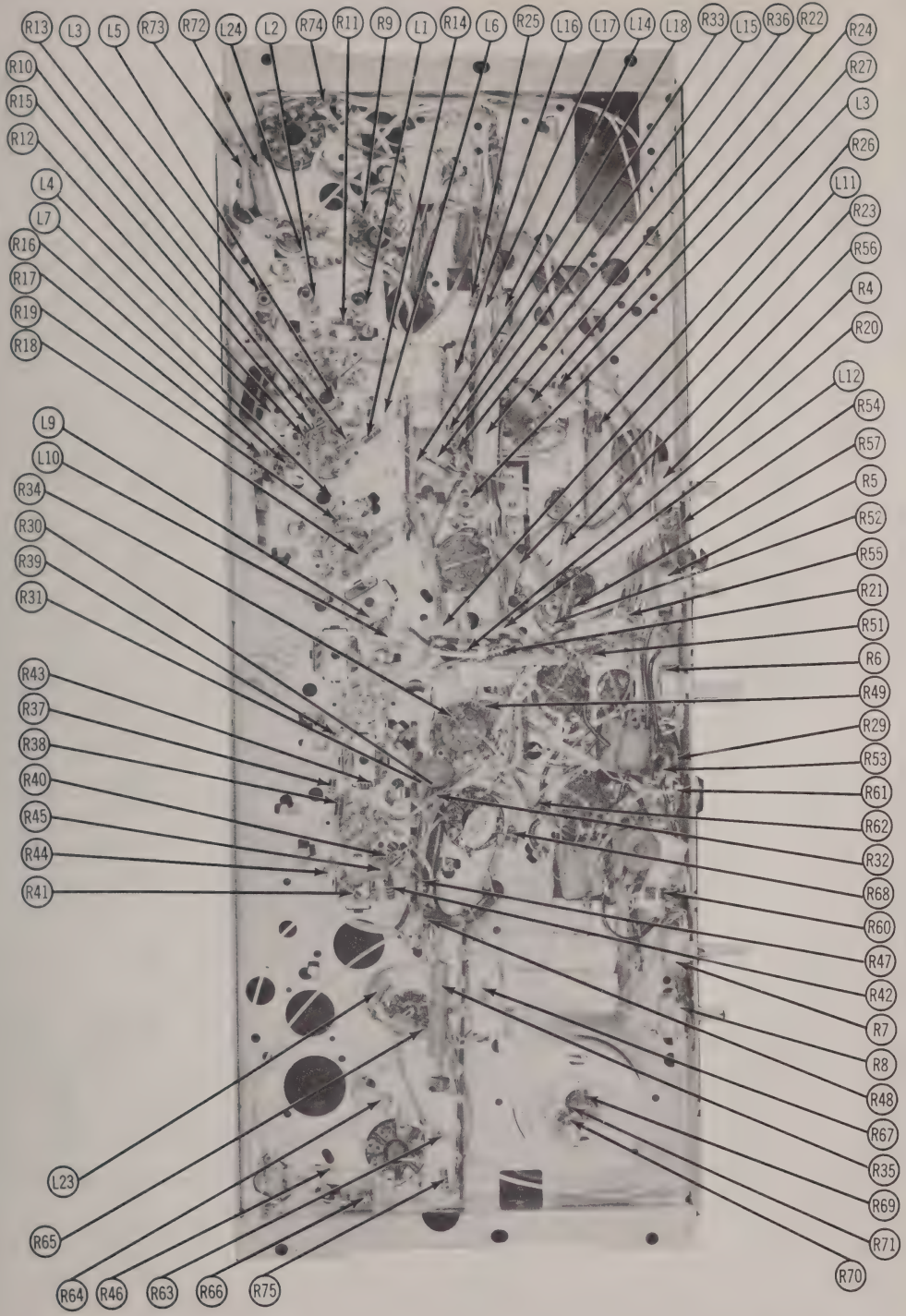
## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

| DESCRIPTION | PART NO. | MODEL NO. 23 SF3W-FM | Y23 SF3W-FM | 23 SF4CW-FM | Y23 SF4CW-FM | 23 SF3W | Y23 SF3W | 23 SF4CW | Y23 SF4CW | 23 SF3M | 23 SF3M-FM | Y23 SF3M | Y23 SF3M-FM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dial Scale-Radio AM | 34C60133A01 | X | X | X | X | | | | | | X | | X |
| Dial Scale-Radio FM | 34C60133A02 | X | X | X | X | | | | | | X | | X |
| Dial Pointer | 52B60361A01 | X | X | X | X | | | | | | X | | X |
| Safety Glass | 61K754307 | X | X | X | X | X | X | X | X | X | X | X | X |
| Mask | 13E65547A01 | X | X | X | X | X | X | X | X | X | X | X | X |
| Knob-Radio Tuning | 36D60203A17 | X | X | X | X | | | | | | X | | X |
| Knob-Radio Selector | 36D60203A19 | X | X | X | X | | | | | | X | | X |
| Knob-VHF Channel Selector | 36C65264A05 | X | X | X | X | X | X | X | X | X | X | X | X |
| Knob-UHF Channel Selector | 36C65264A01 | | X | | X | | X | | X | | | X | X |
| Knob-Fine Tuning | 36C65263A01 | X | X | X | X | X | X | X | X | X | X | X | X |
| Knob-Function Selector | 36D60203A36 | X | X | X | X | X | X | X | X | X | X | X | X |
| Knob-Loudness, Base, Treble | 36D60203A34 | X | X | X | X | X | X | X | X | X | X | X | X |
| Knob-Balance | 36D60203A35 | X | X | X | X | X | X | X | X | X | X | X | X |
| Knob-Brightness | 36D65261A03 | | X | | X | | X | | X | | | X | X |
| Knob-Contrast | 36D65262A01 | | X | | X | | X | | X | | | X | X |
| Knob-Vertical Hold | 36D65261A01 | X | X | X | X | X | X | X | X | X | X | X | X |
| Knob-Brightness, Contrast | 36D65261A01 | X | | X | | X | | X | | X | X | | |
| Legs-Cabinet | 16E65617A04 | X | X | | | X | X | | | | | | |
| Legs-Cabinet | 16E65628A04 | | | X | X | | | X | X | | | | |
| Legs-Cabinet | 16E65617A08 | | | | | | | | | X | X | X | X |
| Cabinet-Walnut | 16E65617A01 | X | X | | | X | X | | | | | | |
| Cabinet-Cherry Wood | 16E65628A01 | | | X | X | | | X | X | | | | |
| Cabinet- Mahogany | 16E65617A05 | | | | | | | | | X | X | X | X |

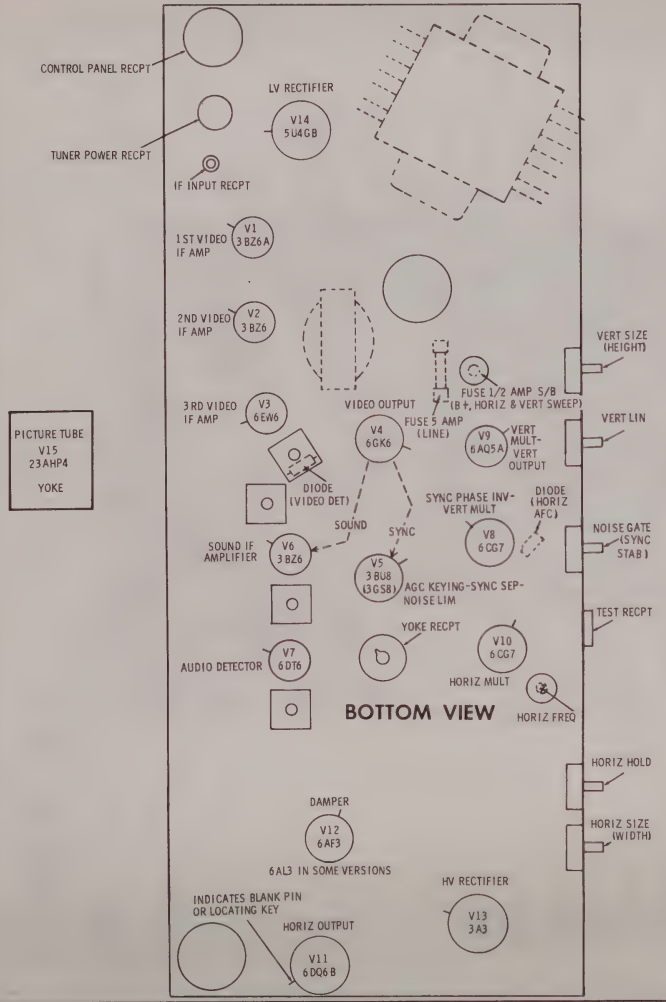
## WIRING DATA

| | | |
|---|---|---|
| High Voltage Lead | Use BELDEN No. | 8869 |
| Shielded Hook-up Wire | Use BELDEN No. | 8885 (Single Conductor)<br>8738 (Two Conductor) |
| General-use Unshielded Hook-up Wire | Use BELDEN No. | 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord (Interlock Type) | Use BELDEN No. | 8874 |
| 300Ω Tuner Input Lead | Use BELDEN No. | 8225 |
| 300Ω Antenna Lead-in | Use BELDEN No. | 8230 or 8275 |
| Antenna Rotor Cable | Use BELDEN No. | 8464 (Flat) or 8484 (Round) - 4 Conductor<br>8485 (Round) - 5 Conductor<br>8488 (Round) - 8 Conductor |




TV CHASSIS BOTTOM VIEW - RESISTOR, INDUCTOR IDENT.

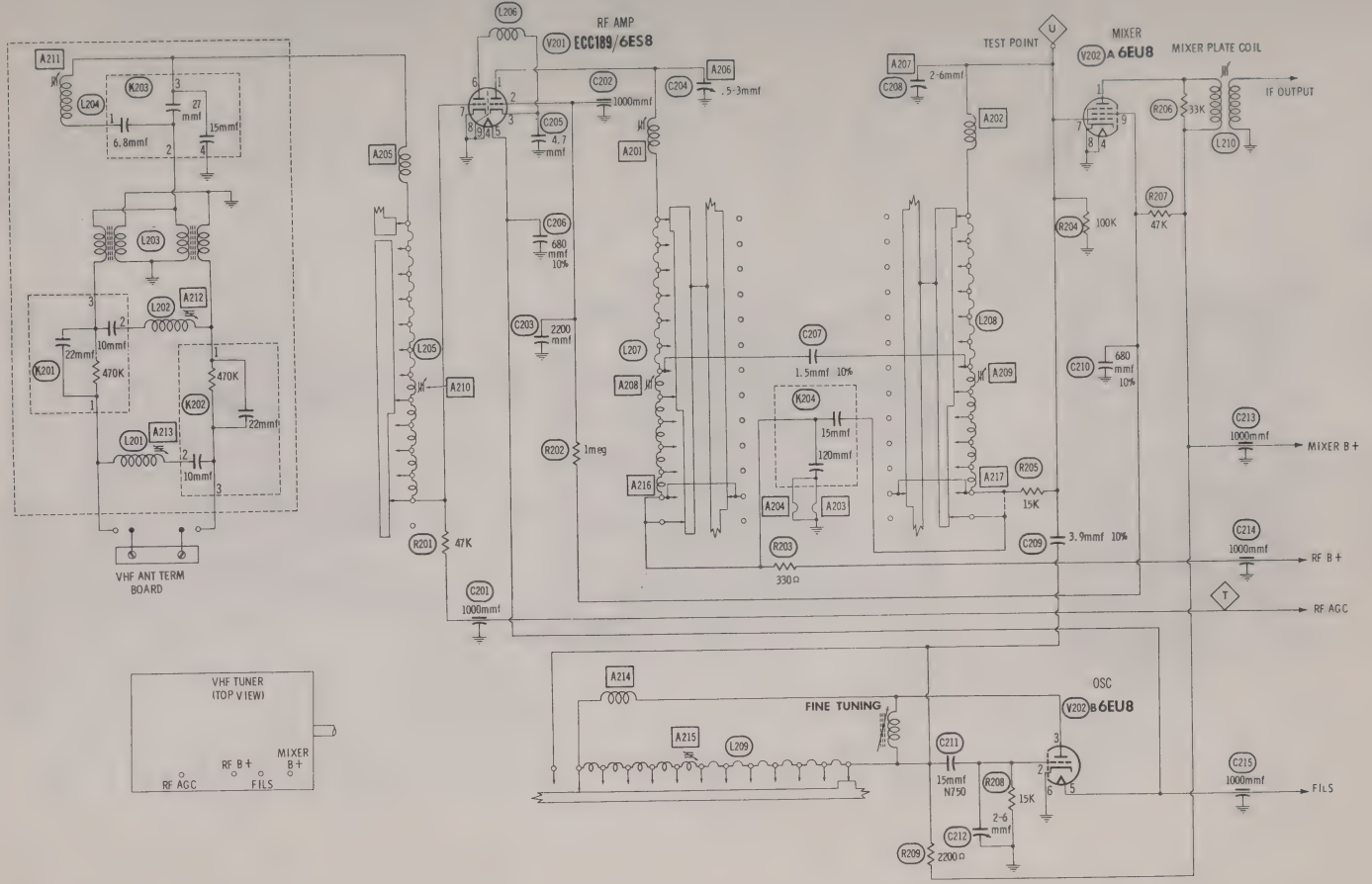
## TV TUBE PLACEMENT CHART




## TV RESISTANCE MEASUREMENTS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 3BZ6A | 680K | 47Ω | FIL | FIL | ▲220Ω | ▲220Ω | 0Ω | | |
| V2 | 3BZ6 | 100K | 200K | FIL | FIL | †250Ω | †250Ω | 180K | | |
| V3 | 6EW6 | .1Ω | 120Ω | FIL | FIL | †6800Ω | †6800Ω | 0Ω | | |
| V4 | 6GK6 | ●85Ω | 72K | 0Ω | FIL | FIL | NC | †5600Ω | †20K | 0Ω |
| V5 | 3BU8 | †3900Ω | †47K | 2.4meg | FIL | FIL | †41K | ●†1meg | †3meg | †3.8meg |
| V6 | 3BZ6 | 100K | 0Ω | FIL | FIL | †17K | †25K | 0Ω | | |
| V7 | 6DT6 | 3.5Ω | 560Ω | FIL | FIL | †395K | †16K | 560K | | |
| V8 | 6CG7 | ¶●4meg | ●1.8meg | 0Ω | FIL | FIL | †33K | 50K | 2200Ω | 0Ω |
| V9 | 6AQ5A | NC | 0Ω | FIL | FIL | †650Ω | †180Ω | ●1.4meg | | |
| V10 | 6CG7 | †60K | ●65K | 1000Ω | FIL | FIL | †12K | 5meg | 1000Ω | 0Ω |
| V11 | 6DQ6B | TP | FIL | NC | ●†5000Ω | 1meg | NC | FIL | 12Ω | TOP CAP †10Ω |
| V12 | 6AF3 | NC | NC | NC | FIL | FIL | NC | TP | NC | †30Ω TOP CAP 5meg |
| V13 | 3A3 | PINS 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP †250Ω |
| V14 | 5U4GB | TP | ¶12K | TP | 24Ω | TP | 22Ω | TP | ¶12K | |
| V15 | 23AHP4 | FIL | 100K | Pin 6 †330K | Pin 10 †360K | Pin 11 ●250K | Pin 12 FIL | | | |
| V201 | ECC189/6ES8 | †6000Ω | †1meg | INF | FIL | FIL | •0Ω | 3.3meg | 0Ω | 0Ω |
| V202 | 6EU8 | †8200Ω | 15K | †10K | FIL | FIL | 0Ω | 100K | 0Ω | †55K |
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM TERMINAL 1 OF THERMAL SWITCH
• MEASURED FROM PIN 3 OF V201.
† MEASURED FROM CAP OF V12.
NC NO CONNECTION
▲ MEASURED FROM PIN 2 OF V2.
TP TIE POINT

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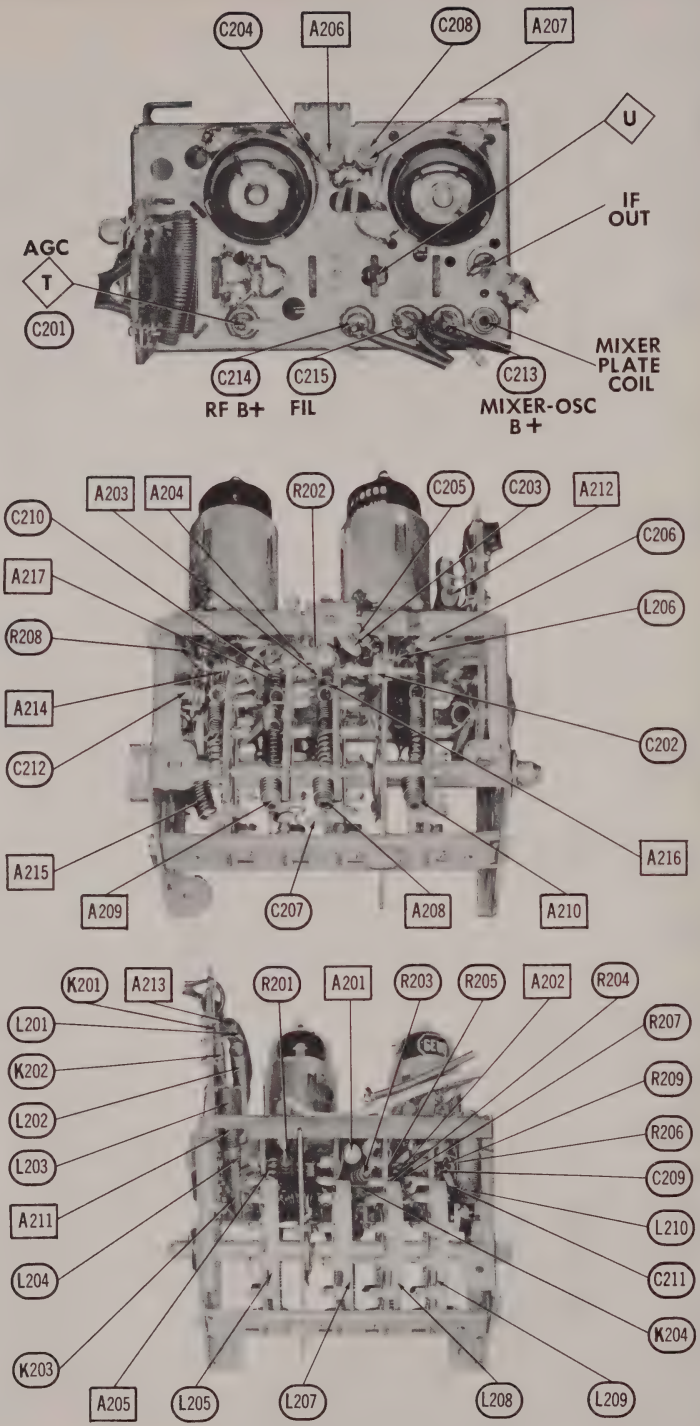
# VHF TUNER OPTT-130

## MOTOROLA CHASSIS TS-574, TS-574Y



FOLDER 2




VHF TUNER OPTT-130

# TUNER PARTS LIST AND DESCRIPTIONS

## OPTT—130

### TUBES

| • GENERAL ELECTRIC • | | RAYTHEON • SYLVANIA • | | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V201 | RF Amp. | ECC189/6ES8 | V202 | Mixer - Osc. | 6EU8 |

### FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C201 | 1000 | | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C202 | 1000 | | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C203 | 2200 | | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C204 | .5-3 | | | | 829-3 | | CV-1 | CT565 | |
| C205 | 4.7 | | | NPO-SI 4.7 | TCZ-4R7 | C10V47C | CCTO-4R7 | CNO-547 | 10TCU-V47 |
| C206 | 680 | 10% | | DI-680 | DD-681 | | CCD-681 | GP368 | 10TS-T68 |
| C207 | 1.5 | 10% | | NPO-SI 1.5 | TCZ-1R5 | C10V15C | | CNO-515 | 10TCC-V15 |
| C208 | 2-6 | | | | 829-6 | | CV-3 | CT552 | |
| C209 | 3.9 | 10% | | | | C10V4C | | | 10TCC-V39 |
| C210 | 680 | 10% | | DI-680 | DD-681 | | CCD-681 | GP368 | 10TS-T68 |
| C211 | 15 | N750 | | N750-DI 15 | DTN-15 | C10Q15U | CCTN-150 | CN7-415 | 10TCU-Q15 |
| C212 | 2-6 | | | | 829-6 | | CV-3 | CT552 | |
| C213 | 1000 | | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C214 | 1000 | | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C215 | 1000 | | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |

### RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R201 | 47K | | | | R206 | 33K | | | |
| R202 | 1meg | | | | R207 | 47K | | | |
| R203 | 330Ω | | | | R208 | 15K | | | |
| R204 | 100K | | | | R209 | 2200Ω | | | |
| R205 | 15K | | | | | | | | |

### COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | MOTOROLA PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K201 | 40KC Filter | 10mmf, 22mmf, 470K | 51C747535 | Centralab PC-360 |
| K202 | 40KC Filter | 10mmf, 22mmf, 470K | 51C747535 | Centralab PC-360 |
| K203 | Antenna Input Coupling | 6.8mmf, 15mmf, 27mmf | 51K751641 | Centralab PC-365 |
| K204 | RF Coupling | 15mmf, 120mmf | 51K752032 | |

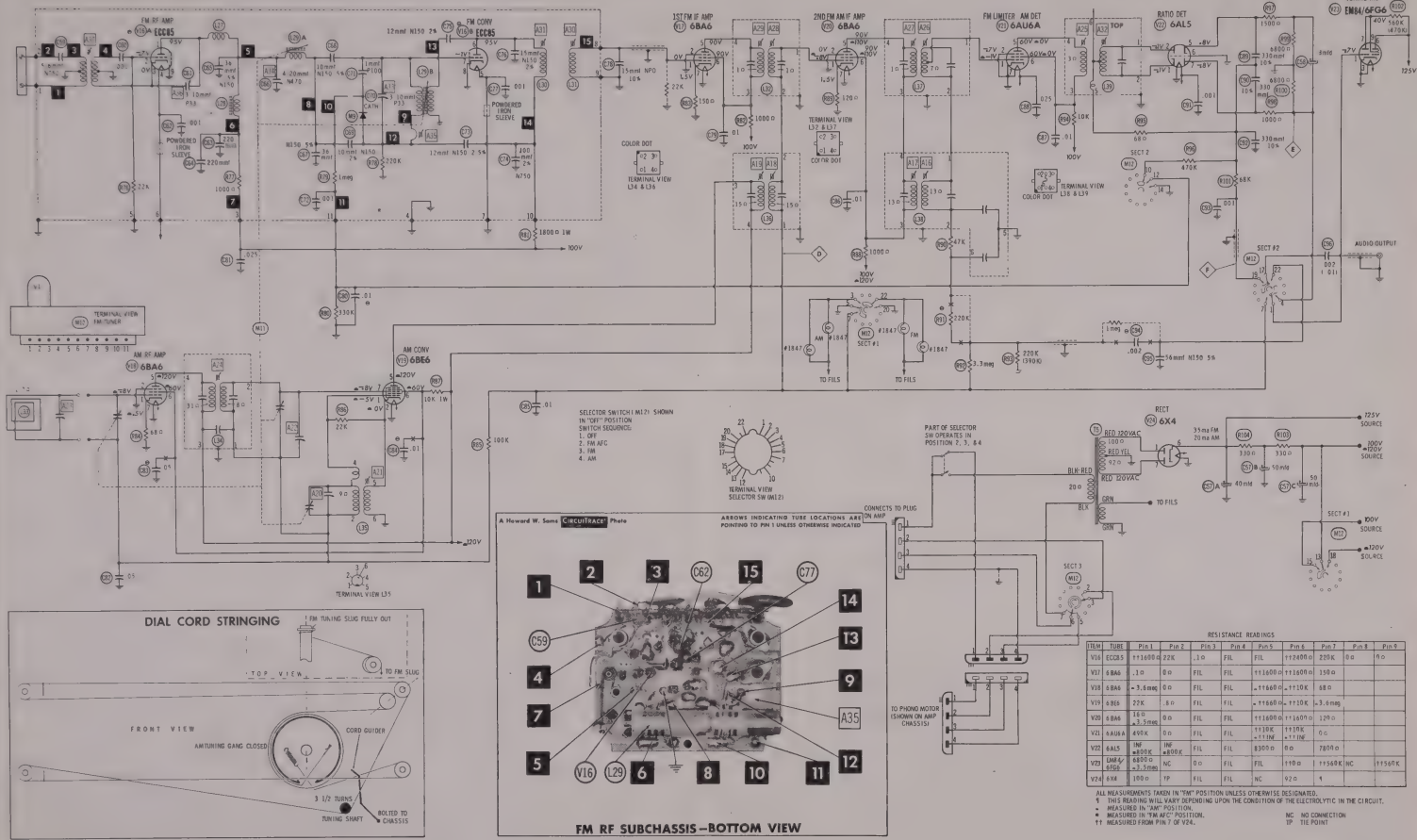
### COILS (RF-IF)

| ITEM No. | USE | MOTOROLA PART No. | NOTES |
|---|---|---|---|
| L201 | 40MC Trap | 24K751665 | |
| L202 | 40MC Trap | 24K751665 | |
| L203 | Ant. Trans. | 24C749398 | |
| L204 | RF Choke | 24K752270 | |
| L205 | Ant. Coils | 1V752397 | Channel 2-13, Includes Wafer Assembly |

| ITEM No. | USE | MOTOROLA PART No. | NOTES |
|---|---|---|---|
| L206 | RF Choke | 24K752261 | |
| L207 | RF Coils | 1V751663 | Channel 2-13, Includes Wafer Assembly |
| L208 | Mixer Grid Coils | 1V751662 | " |
| L209 | Osc. Coils | 1V6507A57 | " |
| L210 | Mixer Plate Coil | 24B747838 | |

### MISCELLANEOUS

| ITEM No. | PART NAME | MOTOROLA PART No. | NOTES |
|---|---|---|---|
| M201 | Arm and Gears | 1V750041 | Assembly, Fine Tuning, Includes Oscillator Screw, Actuator, and Idler Gear |
| | Shaft | 1K754145 | Fine Tuning, Includes Nylon Driver Gear |
| | Shaft | 1D65339A02 | VHF Channel Selector, Includes Pre-Set Wheel |








A Howard W. Sams CIRCUITRACE Photo
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED
FM RF SUBCHASSIS—BOTTOM VIEW

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V16 | ECC85 | ††1600Ω | 22K | .10 | FIL | FIL | ††2400Ω | 220K | 0Ω | 0Ω |
| V17 | 6BA6 | .10 | 0Ω | FIL | FIL | ††1600Ω | ††1600Ω | 150Ω | | |
| V18 | 6BA6 | ▪3.6meg | 0Ω | FIL | FIL | ▪††660Ω | ▪††10K | 68Ω | | |
| V19 | 6BE6 | 22K | .8Ω | FIL | FIL | ▪††660Ω | ▪††10K | ▪3.6meg | | |
| V20 | 6BA6 | 16Ω ▪3.3meg | 0Ω | FIL | FIL | ††1600Ω | ††1600Ω | 120Ω | | |
| V21 | 6AU6A | 490K | 0Ω | FIL | FIL | ††10K ▪††1M | ††10K ▪††1M | 0Ω | | |
| V22 | 6AL5 | INF ▪680K | INF ▪680K | FIL | FIL | 8300Ω | 0Ω | 7800Ω | | |
| V23 | EM84/ 6FG6 | 6800Ω ▪3.3meg | NC | 0Ω | FIL | FIL | ††0Ω | ††560K | NC | ††560K |
| V24 | 6X4 | 100Ω | TP | FIL | FIL | NC | 92Ω | 1 | | |

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
- MEASURED IN "AM" POSITION.
▪ MEASURED IN "FM AFC" POSITION.
†† MEASURED FROM PIN 7 OF V24.
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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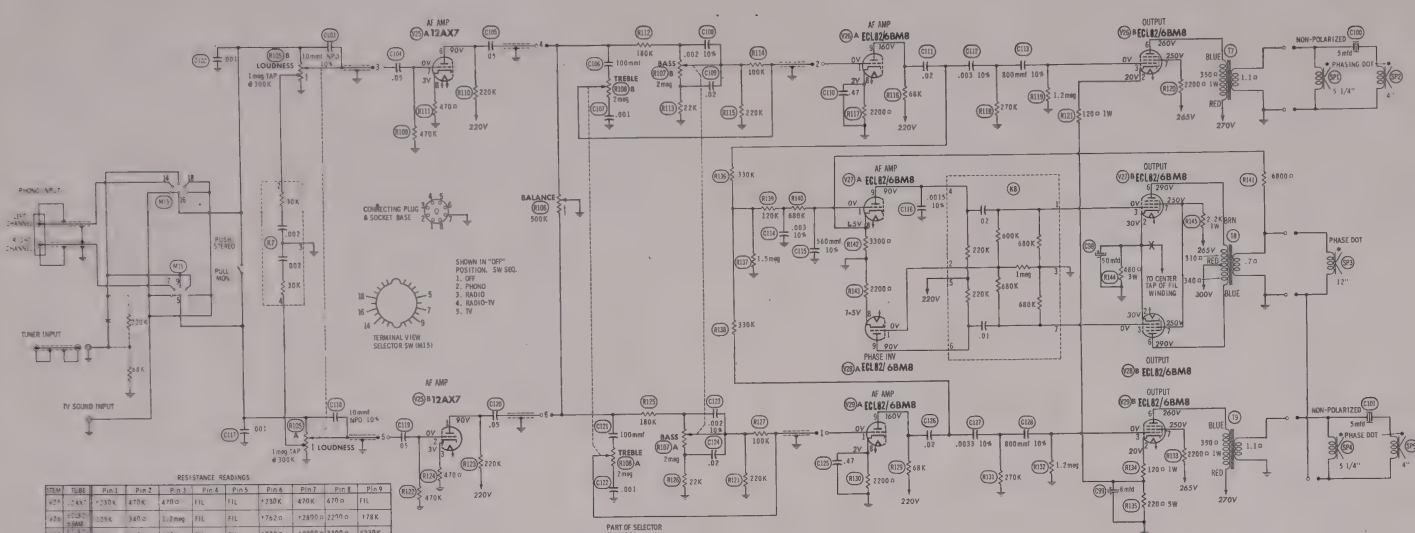
# FM-AM TUNER CHASSIS HS-822G

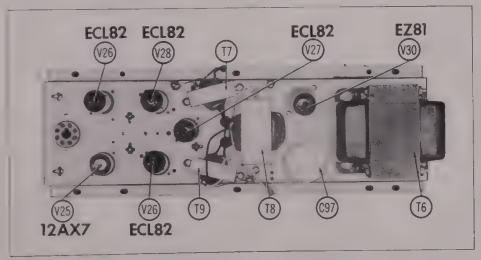



RESISTANCE READINGS

| Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|
| V25 | 1.4K | 1*230K | 470K | 470Ω | FIL | FIL | 1*230K | 470K | 470Ω | FIL |
| V26 | 0-1.5 MEG | 225K | 340Ω | 1.2meg | FIL | FIL | 1*762Ω | 1*2800Ω | 2200Ω | 178K |
| V27 | 0-1.5 MEG | 1.3meg | 440Ω | 420K | FIL | FIL | 1*392Ω | 1*2800Ω | 3300Ω | 1*230K |
| V28 | 0-1.5 MEG | 478K | 480Ω | 420K | FIL | FIL | 1*422Ω | 1*2800Ω | 2200Ω | 1*230K |
| V29 | 0-1.5 MEG | 225K | 340Ω | 1.2meg | FIL | FIL | 1*762Ω | 1*2800Ω | 2200Ω | 178K |
| V30 | 0-1.5 MEG | 330 | NC | 1.80K | FIL | FIL | NC | 35Ω | NC | NC |

1 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED FROM PIN 3 OF V30. NC NO CONNECTION

AMP CHASSIS —TOP VIEW

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AMP CHASSIS HS-874

# FM-AM ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

| | |
|---|---|
| A16 thru A19, A21, A24 ... | GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989<br>WALSCO #2515, 2531, 2532 |
| A20, A22, A23, A35 ..... | GENERAL CEMENT #5004, 5008, 5009<br>WALSCO #2520 |
| A25, A32 ..... | GENERAL CEMENT #5097, 8727<br>WALSCO #2515 |
| A26 thru A29 ..... | GENERAL CEMENT #8607, 9291, 9294<br>WALSCO #2520, 2522, 2523, 2524, 2534, 2537 |
| A33, A34, A36 ..... | GENERAL CEMENT #5000, 5003, 5066, 827C, 8290, 9087, 9089<br>WALSCO #2512, 2525, 2528 |
| A30, A31, A37 ..... | GENERAL CEMENT #8282, 8606, 8606L, 9091<br>WALSCO #2526, 2541, 2542, 2543, 2544 |

AM ALIGNMENT - SELECTOR IN AM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to to pin 7 (grid) of AM Converter. Low side to chassis. | 455KC (Unmod.) | (AM) Tuning gang fully open | DC probe to point (D). Common to chassis. | A16, A17, A18, A19 | Adjust for maximum deflection. |
| 2. | Loop | 1620KC | " | " | A20 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3. | " | 535KC | Tuning gang fully closed | " | A21 | " |
| 4. | " | 1400KC | 1400KC | " | A22, A23 | " |
| 5. | " | 600KC | 600KC | " | A24 | " |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 6. | Across FM antenna terminals. | 10.7MC (Unmod.) | (FM) Point of non-interference | DC probe to point (E). Common to chassis. | A25, A26, A27, A28, A29, A30, A31 | Adjust for maximum deflection. |
| 7. | " | " | " | DC probe to point (F). Common to chassis. | A32 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 6. | Across FM antenna terminals. | 10.7MC (450KC Swp) | (FM) Point of non-interference | Vert. Amp. to point (E). Low side to chassis. | A25, A26, A27, A28, A29, A30, A31 | Disconnect Stabilizing Capacitor C58. Adjust for maximum gain and symmetry of response similar to Fig. 5 with markers as shown. Reconnect C58. |
| 7. | " | " | " | Vert. Amp. to point (F). Low side to chassis. | A32 | Adjust to place marker at the center of crossover lines similar to Fig. 6. SLIGHTLY retouch A25 for maximum amplitude and straightness of crossover lines. |

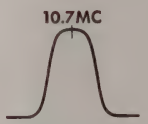



FIG. 5

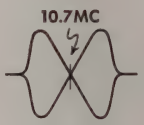
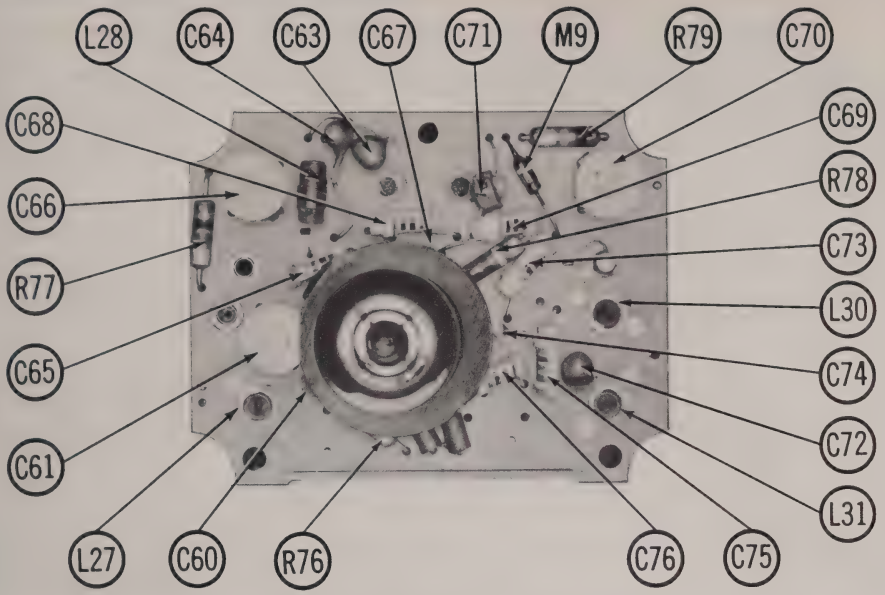



FIG. 6

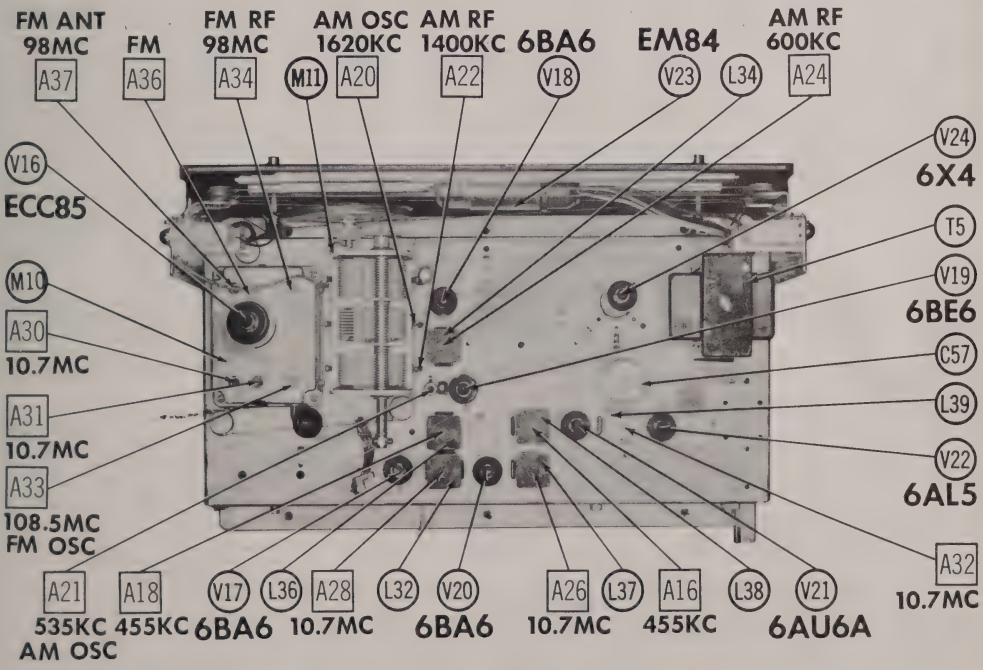
FM RF ALIGNMENT - SELECTOR IN FM POSITION

Check for oscillation as in step 12 and if necessary perform steps 13 and 14 before performing steps 8, 9, 10 and 11.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 8. | Across FM antenna terminals. | 108.5MC (Unmod.) | (FM) High frequency end stop | DC probe to point (E). Common to chassis. | FM Tuner String | Adjust to take slack out of string. |
| 9. | " | " | " | " | A33 | Adjust for maximum deflection. |
| 10. | " | 98MC | 98MC | " | A34 | " |
| 11. | " | 87.5MC | Low end stop | " | A35 | Adjust for maximum deflection. Repeat steps 9, 10 and 11. |
| 12. | Disconnect the FM antenna and connect a 330Ω $\frac{1}{2}$ watt carbon resistor across the FM antenna terminals. Tune across the FM band while observing the tuning indicator for indications of oscillation as shown by a partial or complete closure or fluctuation of the indicator tube; also noted by howls, squeals, motorboating, etc. If oscillations occur, back A37 out of coil form and proceed as follows. | | | | | |
| 13. | 330Ω across FM antenna terminals. | | Wherever osc. occur | | A36 | Adjust until oscillations ceases. |
| 14. | Across FM antenna terminals. | 98MC | 98MC | DC probe to point (E). Common to chassis. | A37 | Adjust for maximum deflection. Repeat steps 9, 10 and 11. |




FM-RF SUBCHASSIS - TOP VIEW




FM-AM TUNER - TOP VIEW

# FM–AM PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | GENERAL ELECTRIC * TYPE | RAYTHEON * TYPE | SYLVANIA * TYPE |
|---|---|---|---|---|
| V16 | FM RF Amp. - FM Conv. | ECC85 (6AQ8) * | | 6AU6A |
| V17 | 1st FM IF Amplifier | 6BA6 | | 6AL5 |
| V18 | AM RF Amplifier | 6BA6 | | EM84/6FG6 |
| V19 | AM Converter | 6BE6 | | 6BE6 |
| V20 | 2nd FM IF - AM IF Amp. | 6BA6 | | 6BA6 |
| V22 | FM Limiter - AM Det. | | | 6AU6A |
| V23 | Ratio Detector | | | 6AL5 |
| V33 | Tuning Indicator | | | EM84/6FG6 |
| V34 | Rectifier | | | 6X4 |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA MOTOROLA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C57A | 40 | 150 | 23D645336 | AFH3-11-50 | XCU105 | FP311.85 | TMT-3133 | TVL-3442 | |
| B | 50 | 150 | | | | | | | |
| C | 50 | 150 | | | | | | | |
| C58 | 8 | 50 | 23K547219 | PT7H | NLWB-50 | TC41 | TD-8-150 | TF-1303.3 | Note 1 |

Note 1. Some versions may use Pt. #23A636536.

## FIXED CAPACITORS

| ITEM No. | RATING | | | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | FILMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|---|
| C59 | 5.6 | NPO | | #21K547194 | | | | | | |
| C60 | .001 | | | | BPD-001 | DD-102 | BYA10DL | | B-210 | 5HK-D10 |
| C61 | 3-10 | P33 | | #20K546183 | | | | | | |
| C62 | .001 | | | | BPD-001 | DD-102 | BYA10DL | CCD-102 | B-210 | 5HK-D10 |
| C63 | 330 | | | | DI-330 | DD-331 | L10T33 | CCD-331 | B-332 | 10TS-T32 |
| C64 | 330 | | | | DI-330 | DD-331 | L10T33 | CCD-331 | B-332 | 10TS-T32 |
| C65 | 36 | N150 | 5% | #21K546185 | | | | * | | |
| C66 | 4-30 | N470 | | #20K546185 | | | | * | | |
| C67 | 36 | N150 | 5% | #21K546186 | | | | * | | |
| C68 | 20 | N150 | 2% | #21K546187 | | | | * | | |
| C69 | 10 | N150 | 2% | #21K546187 | | | | * | | |
| C70 | 3-30 | P33 | | #20K546183 | | | | * | | |
| C71 | 1 | P600 | | #21K546188 | | | | * | | |
| C72 | .002 | | | | BPD-001 | DD-102 | BYA10DL | CCD-102 | B-210 | 5HK-D10 |
| C73 | 13 | N150 | 2.5% | #21K546189 | | | | * | | |
| C74 | 100 | N750 | 5% | #21K546191 | | TCN-100 | | * | | |
| C75 | 13 | N150 | 2% | #21K546189 | | | | * | | |
| C76 | 15 | N150 | 2% | #21K546190 | | | | * | | |
| C77 | .002 | | | | BPD-001 | DD-102 | BYA10DL | CCD-102 | B-210 | 5HK-D10 |
| C78 | 15 | NPO | 10% | | NPO-DI 15 | DTZ-15 | C10QJSC | CCTO-150 | CNO-415 | 10TCC-Q15 |
| C79 | .01 | | | | BPD-01 | DD-103 | BYA10SL | CCD-103 | B-110 | 5HK-S10 |
| C80 | .01 | | | Note 1 | BPD-01 | DD-103 | BYA10SE | CCD-103 | B-110 | 5HK-S10 |
| C81 | .035 | | | | | | DPM36S25 | 4DP-3-253 | GEM-4125 | 5HK-S25 |
| C82 | .05 | 200V | | | P288N-05 | DD-503 | CUB3S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C83 | .05 | 200V | | Note 2 | P288N-05 | DD-503 | CUB3S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C84 | .01 | | | Note 2 | BPD-01 | DD-103 | BYA10SL | CCD-103 | B-110 | 5HK-S10 |
| C85 | .01 | | | | BPD-01 | DD-103 | BYA10SL | CCD-103 | B-110 | 5HK-S10 |
| C86 | .01 | | | | BPD-01 | DD-103 | BYA10SL | CCD-103 | B-110 | 5HK-S10 |
| C87 | .01 | | | | BPD-01 | DD-103 | BYA10SE | CCD-103 | B-110 | 5HK-S10 |
| C88 | .035 | | | | | | DPM36S25 | 4DP-3-253 | GEM-4125 | 5HK-S25 |
| C89 | 330 | | 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C90 | 330 | | 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C91 | .01 | | | | BPD-001 | DD-102 | BYA10DL | CCD-102 | B-210 | 5HK-D10 |
| C92 | 330 | | 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C93 | .001 | | | | BPD-001 | DD-102 | BYA10DL | CCD-102 | B-210 | 5HK-D10 |
| C94 | .002 | | | Note 2 | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C95 | 56 | N150 | 5% | #21K30672 | | | | | | 10TCP-Q56 |
| C96 | .002 | | | ( .01) † | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |

Note 1. Manufacturer recommends changing C80 (.01) to .1mfd @ 200V (to prevent Base drop-out when in AFC position).
Note 2. May not be used in some versions. † Motorola Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer. ‡ Alternate Value

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R78 | 22K | | | Note 1 |
| R87 | 1000Ω | | | |
| R89 | 220K | | | (390K) * |
| R93 | 1meg | | | |
| R80 | 330K | | | |
| R81 | 1800Ω 1W | | | |
| R97 | 1000Ω | | | |
| R83 | 150Ω | | | |
| R84 | 68Ω | | | |
| R85 | 100K | | | |
| R86 | 22K 1W | | | |
| R87 | 68K 1W | | | (470K) * |
| R88 | 1000Ω | | | |
| R89 | 120Ω | | | |
| R90 | 47K | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R91 | 220K | | | |
| R92 | 2.2meg | | | |
| R93 | 220K | | | (390K) * |
| R94 | 10K | | | |
| R95 | 68Ω | | | |
| R96 | 470K | | | |
| R97 | 1000Ω | | | |
| R98 | 1000Ω | | | |
| R99 | 6800Ω | | | |
| R100 | 6800Ω | | | |
| R101 | 68K | | | |
| R102 | 560K 1W | | | (470K) * |
| R103 | 330Ω | | | |
| R104 | 330Ω | | | |

Note 1. May not be used in some versions. * Alternate Value.

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA MOTOROLA PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L27 | FM Ant. Trans. | 24K546196 | | | | | |
| L28 | RF Choke | 24K546193 | | | | | |
| L29A | FM RF | 24K546194 | | | | | |
| B | FM Osc. | | | | | | |
| L30 | 1st FM IF (Pri.) | 1K546537 | | | | | |
| L31 | 1st FM IF (Sec.) | 1K546537 | | | | | |
| L32 | 2nd FM IF | 24C604320A01 | FM-254 | 1463 | RTC-8599 | T633 | |

## COILS (RF-IF) (cont)

| ITEM No. | USE | REPLACEMENT DATA MOTOROLA PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L33 | Loop Ant. | 1V60044A84 ① | | | | | ①Includes 1.3-11mmf Trimmer (Pt. #23B60130A01). |
| L34 | AM RF | 24C604I8A01 | | | | | |
| L35 | AM Osc. | 24B633340 | BC-393 | 89-OSC | RTC-8646 | T593 | |
| L36 | 1st AM IF | 24C604I9A01 | BC-353 | 13-C1 | RTC-8633 | T607 | |
| L37 | 3rd FM IF | 24C604320A02 | | | | | |
| L38 | 2nd AM IF | 24C604I8A02 | BC-355 | 13-C6 | RTC-8634 | T609 | |
| L39 | Ratio Detector | 24C633648 | FM-255 | 1465 | RTC-8600 | T625 | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | SEC. 1 | SEC. 2 | REPLACEMENT DATA MOTOROLA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T5 | 117V @ .3A | 240VCT @ .035A DC | 6.3V @ 3.0A | 25C60393A01 | | | | | |

## SIGNAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA MOTOROLA PART No. | GENERAL ELECTRIC PART No. | RAYTHEON PART No. | NOTES |
|---|---|---|---|---|---|
| M9 | | 4H34619I2 * | | | * Special AFC Diode (Part of FM Tuner). |

## MISCELLANEOUS

| ITEM No. | PART NAME | MOTOROLA PART No. | NOTES |
|---|---|---|---|
| M20 | Tuner | 7TK547193 | FM, Complete (Less Tube) |
| M21 | Tuning Capacitor | 19C603448A01 | 3 Gang (Ant.: 20-530mmf, RF: 21-415mmf, Osc.: 25-145mmf) |
| M12 | Switch | 40C603I1A01 | Function Selector, (Includes Off-On Switch Pt. #40C603I1A02) |

# AMP PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | GENERAL ELECTRIC * TYPE | RAYTHEON * TYPE | SYLVANIA * TYPE |
|---|---|---|---|---|
| V25 | Left Channel - Right Channel AF Amp. | 12AX7 | | |
| V26 | Left Channel AF Amp. - Output | ECL82/6BM8 | | |
| V27 | Center Channel AF Amp. - Output | ECL82/6BM8 | | |
| V28 | Center Channel Phase Inv. - Output | | | ECL82/6BM8 |
| V29 | Right Channel AF Amp. - Output | | | ECL82/6BM8 |
| V30 | Rectifier | | | EZ81/6CA4 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA MOTOROLA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C97A | 40 | 400 | 23D60190A01 | AFH4-18-45 | D01T7 | WP447.7 | TMQ-4652 | TVL-4775 | |
| B | 40 | 400 | | | | | | | |
| C | 40 | 350 | | | | | | | |
| D | 40 | 350 | | | | | | | |
| C98 | 50 | 50 | 23C60119A06 | PR3I350 | BR505 | TC39 | TD-50-50 | TVA-1305 | |
| C99 | 8 | 25 | 23C60119A02 | PR3I405 | BBR4-150 | TC41 | TD-8-150 | TVA-1405 | |
| C100 | 5 | 25NP | 23B643970 | PR3T405 | BBR4-150 | TCN505 | | TVAN8-1203.1 * | |
| C101 | 5 | 25NP | 23B643970 | PR3T405 | BBR4-150 | TCN505 | | TVAN8-1203.1 * | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

| ITEM No. | RATING | | | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | FILMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|---|
| C102 | .001 | | | | BPD-001 | DD-102 | BYA10DL | CCD-102 | B-210 | 5HK-D10 |
| C103 | 10 | NPO | 10% | | NPO-DI 10 | DTZ-10 | C10QJC | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C104 | .05 | 200V | | | P288N-05 | DD-503 | CUB3S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C105 | .05 | 400V | | | P288N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C106 | 100 | | | | DI-100 | DD-101 | L10T1 | CCD-101 | B-310 | 10TS-T10 |
| C107 | .001 | | | | BPD-001 | DD-102 | BYA10DL | CCD-102 | B-210 | 5HK-D10 |
| C108 | .002 | | 10% | | DI-2000 | | 5R5D2 | CCD-202 | GP220 | 10TS-D20 |
| C109 | .02 | 200V | | | P288N-02 | DD-203 | CUB2S2 | 4DP-2-203 | GEM-413 | 2TM-S20 |
| C110 | 47mfd | 3V | | | | UK-474 | | | | HY-130 |
| C111 | .02 | 400V | | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-413 | 4TM-S20 |
| C112 | .0033 | | 10% | | DI-3300 | | PMB1D33 | CCD-332 | JL-233 | 10TS-D33 |
| C113 | 800 | | 10% | | DI-820 | DD-801 | BR5T8 | CCD-821 | GP382 | 10TS-T80 |
| C114 | .0033 | | 10% | | DI-3300 | | PMB1D33 | CCD-332 | JL-233 | 10TS-D33 |
| C115 | 560 | | 10% | | DI-560 | DD-561 | BR5T56 | CCD-561 | GP368 | 10TS-T56 |
| C116 | .0015 | | 10% | | DI-1500 | DD-152 | PMB1D5 | CCD-152 | GP215 | 10TS-D15 |
| C117 | .001 | | | | BPD-001 | DD-102 | BYA10DL | CCD-102 | B-210 | 5HK-D10 |
| C118 | 10 | NPO | 10% | | NPO-DI 10 | DTZ-10 | C10QJC | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C119 | .05 | 200V | | | P288N-05 | DD-503 | CUB3S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C120 | .05 | 400V | | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C121 | 100 | | | | DI-100 | DD-101 | L10T1 | CCD-101 | B-310 | 10TS-T10 |
| C122 | .001 | | | | BPD-001 | DD-102 | BYA10DL | CCD-102 | B-210 | 5HK-D10 |

# AMP PARTS LIST AND DESCRIPTIONS (Continued)

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | FILMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C123 | .002 | 10% | | | | BYA10D2 | CCD-202 | GP220 | 10TS-D20 |
| C124 | .02 | 200V | | P288N-02 | DD-203 | CUB2S2 | 4DP-2-203 | GEM-413 | 2TM-S20 |
| C125 | .47mfd | 3V | | | UK-474 | | | | HY-130 |
| C126 | .02 | 400V | | P488N-02 | DD-203 | CUB4S2 | 4DP-2-203 | GEM-413 | 4TM-S20 |
| C127 | .0033 | 10% | | DI-3300 | | PMB1D33 | CCD-332 | JL-233 | 10TS-D33 |
| C128 | 800 | 10% | | DI-820 | DD-801 | BR5T8 | CCD-821 | GP382 | 10TS-T80 |
| C129 | .005 | 200V | | | DD00-502 | HVC20D5 | 3CCD-502 | 5HV-347 | BL-D50 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | WATTS | REPLACEMENT DATA MOTOROLA PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R105A | 1meg | ½ | 18E246986 | | | | FA16T35 | Loudness, Right Channel |
| | 500K Tap | | | | | | | |
| B | 1meg | ½ | | | | | RU16T35 | Loudness, Left Channel |
| | 500K Tap | | | | | | | |
| C | Shaft | | | | | | C83500 | |
| R106A | 500K | ½ | 18K546987 | | | | | Balance |
| B | Switch | | | | | | | Push-Pull Stereo-Monaural |
| R107A | 2meg | ½ | 18D601I8A01 | B-76 | AD47-2meg-2 | | FA36A | Base, Right Channel |
| B | 2meg | ½ | | Not Req. | Not Req. | | RU36A | Base, Left Channel |
| C | Shaft | | | Not Req. | Not Req. | | C83500 | |
| R108A | 2meg | ½ | 18D601I8A01 | B-76 | AD47-2meg-2 | | FA36A | Treble, Right Channel |
| B | 2meg | ½ | | B-76 | Not Req. | | RU36A | Treble, Left Channel |
| C | Shaft | | | Not Req. | Not Req. | | C83500 | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R109 | 470K | | | |
| R110 | 270K | | | |
| R111 | 470Ω | | | |
| R112 | 180K | | | |
| R113 | 22K | | | |
| R114 | 100K | | | |
| R115 | 220K | | | |
| R116 | 68K | | | |
| R117 | 2200Ω | | | |
| R118 | 470K | | | |
| R119 | 1.2meg | | | |
| R120 | 2200Ω 1W | | | |
| R121 | 1200 1W | | | |
| R122 | 470K | | | |
| R123 | 220K | | | |
| R124 | 470Ω | | | |
| R125 | 180K | | | |
| R126 | 22K | | | |
| R127 | 100K | | | |
| R128 | 220K | | | |
| R129 | 68K | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R130 | 2200Ω | | | |
| R131 | 270K | | | |
| R132 | 1.5meg | | | |
| R133 | 2200Ω 1W | | | |
| R134 | 1200 1W | | | |
| R135 | 220Ω 5W | PW5-220 | 5W-SQ-220 | |
| R136 | 330K | | | |
| R137 | 1.5meg | | | |
| R138 | 330K | | | |
| R139 | 120K | | | |
| R140 | 680K | | | |
| R141 | 68000Ω | | | |
| R142 | 3300Ω | | | |
| R143 | 2200Ω | | | |
| R144 | 480Ω 3W | PW3-480 | 3Ω-480 | |
| R145 | 2200Ω 1W | | | |
| R146 | 10K 1W | | | |
| R147 | 220Ω 5W | PW5-220 | 5W-SQ-220 | |
| R148 | 330Ω 5W | PW5-330 | 5W-SQ-330 | |
| R149 | 82Ω 5W | PW5-82 | 5W-SQ-82 | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DISCRIPTION | MOTOROLA PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K7 | Loudness Comp. | .003mfd, .003mfd, 30K, 30K | 51K546985 | |
| K8 | Center Channel Audio Coupling | .01mfd, .02mfd, 220K, 220K, 800K, 680K, 680K, 680K, 1meg | 51B604324A01 | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | SEC. 1 | SEC. 2 | REPLACEMENT DATA MOTOROLA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T6 | 117V | 540VCT @ .175A DC | 6.3V @ 1.0A | 25K546988 | | | | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3VCT @ 3.5A | | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | SEC. | REPLACEMENT DATA MOTOROLA PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T7 | 5200Ω | 6-8Ω | 25C645449F | A-2900 | A-3337 ① | 34804 | S-83X | ① Drill new mounting hole(s). |
| T8 | 9000Ω CT | 6-8Ω | 25C603944A03 | A-2900 ① | A-3370 | 32868 | S-55X | |
| T9 | 5200Ω | 6-8Ω | 25C645449F | A-2900 | A-3337 ① | 34804 | S-83X | |

## SPEAKER

| ITEM No. | TYPE SIZE | FIELD | V. C. IMP. | REPLACEMENT DATA MOTOROLA PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 5 1/4" | PM | 6-8Ω | 50D652955A03 | 52AI2S | |
| SP2 | 4" | PM | 6-8Ω | 50D650724A02 | 4AI2S | |
| SP3 | 12" | PM | 6-8Ω | 50D656334A01 | 12AS2A | |
| SP4 | 5 1/4" | PM | 6-8Ω | 50D652955A03 | 52AI2S | |
| SP5 | 4" | PM | 6-8Ω | 50D650724A02 | 4AI2S | |

MOTOROLA CHASSIS TS-574, TS-574Y

FOLDER 2

# AMP PARTS LIST AND DESCRIPTIONS (Continued)

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

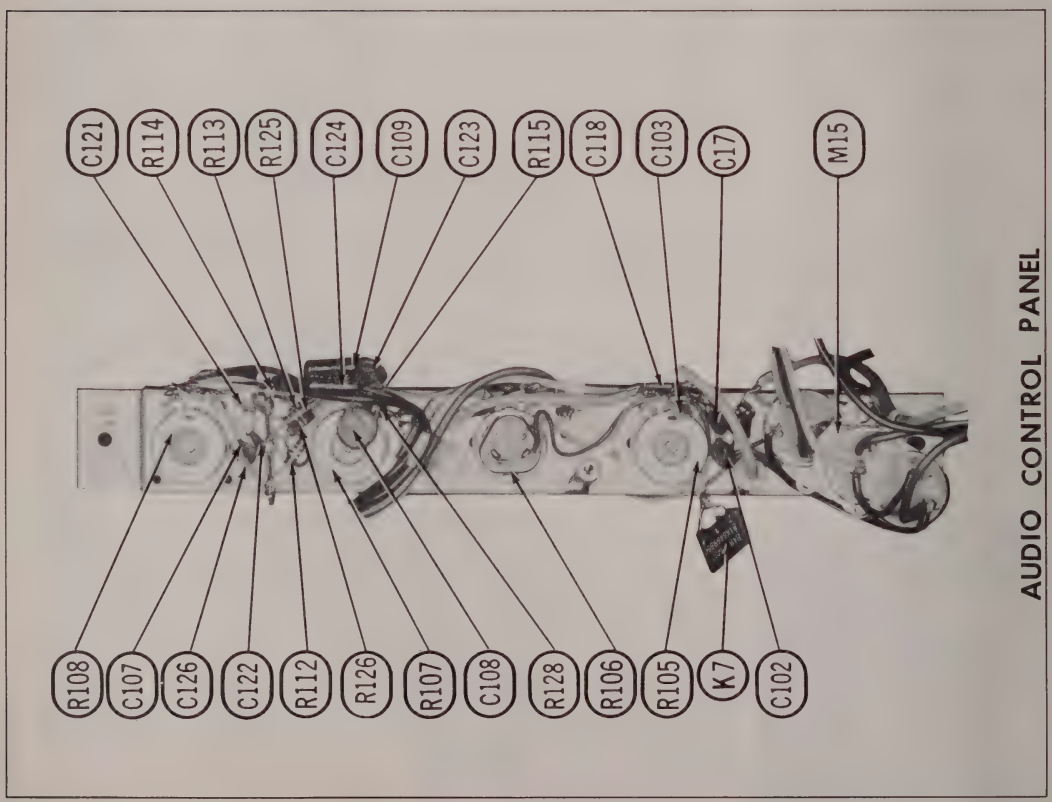
| ITEM No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | MOTOROLA PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | SONOTONE PART No. | | |
| | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | |
| M13 | 59C60336A02 ① | 59C60336A05* (LP)<br>59C60336A03* (78) | 17D | Not Req. | 26SD | 2604D * (LP)<br>2605 * (78) | 9T-SD | N-9T-SD | ①Includes Needles |

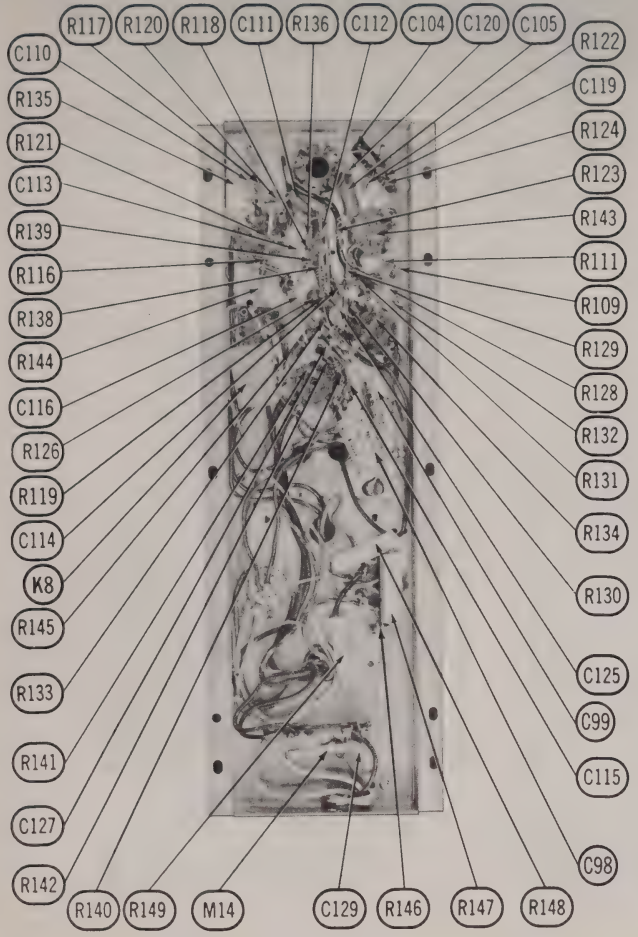
## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | MOTOROLA PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M14 | 3AG | 3A 125V S/B P/T | 65A646112 | | 315003 (3AG 3A 125V S/B P/T) | | MDV3 | |

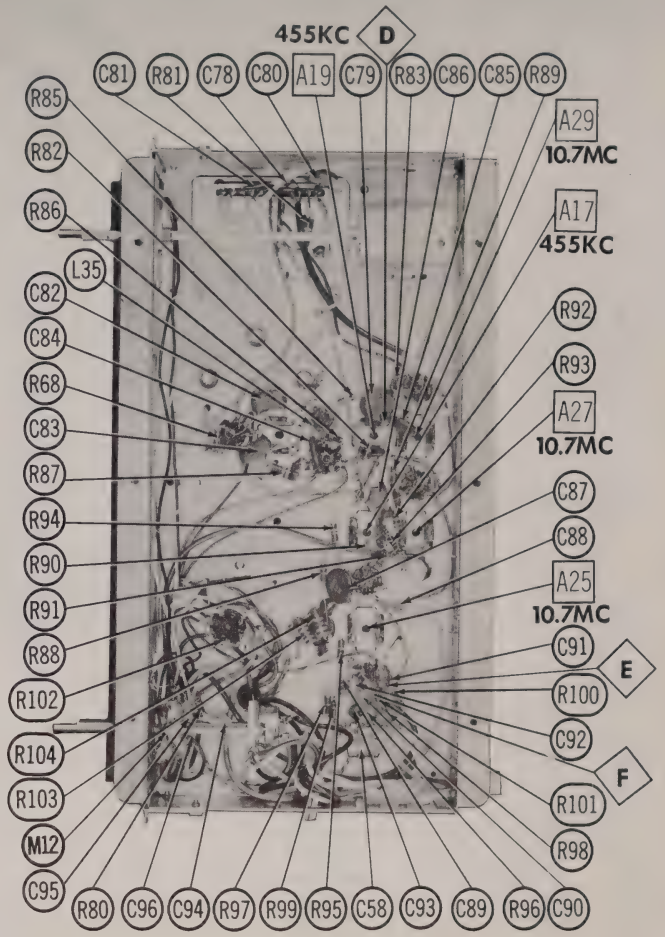
## MISCELLANEOUS

| ITEM No. | PART NAME | MOTOROLA PART No. | NOTES |
|---|---|---|---|
| M15 | Switch | 40D60349A01 | Selector (Includes Off-On Part #40D60349A04, Amplifier Selector, Part #40D60349A02, and TV Off-On Part #40D60349A03) |






AMP CHASSIS - BOTTOM VIEW




FM-AM TUNER CHASSIS - BOTTOM VIEW

# VHF TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Remove the deflection yoke plug to prevent interference radiation. Connect a 1500Ω 50 watt resistor from pin 3 to pin 5 of the Service Test Receptacle.
DO NOT remove the tuner cover.
Suggested Alignment Tools: A206, A207 ..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525
A208 thru A213... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

VHF RF AND MIXER ALIGNMENT

Connect a clip lead from point Ⓣ to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms
Use only enough sweep generator output to provide a usable pattern on scope.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Preset A206 and A207 so top of screw is .35" above tuner chassis.
Use 10MC sweep unless otherwise noted.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 213MC | 211.25MC<br>215.75MC | 13 | Vert. Amp. thru 47K to point Ⓤ. Low side to chassis. | A201, A202 | Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown. |
| 2. | " | " | " | " | " | " | A203, A204 | Adjust for proper bandwidth as in Fig. 201. |
| 3. | " | " | " | " | " | " | A205 | Adjust for maximum amplitude and MINIMUM tilt. |
| 4. | " | " | 177MC | 175.25MC<br>179.75MC | 7 | " | A206, A207 | Adjust A206 for proper marker position. Adjust A207 for MINIMUM tilt. |
| 5. | " | " | 85MC | 83.25MC<br>87.75MC | 6 | " | A208, A209, A210 | Adjust A208 to place 83.25MC marker on or near peak. A209 to place 87.75MC marker on or near other peak and A210 for maximum gain and MINIMUM tilt. |
| 6. | " | " | " | 94MC | " | " | A211 | Adjust for MINIMUM response at marker or until it just starts to affect the high frequency side of response curve. NOTE: A211 may be adjusted to trap out interference between 85 and 108MC. However, make certain that no part of a desired channel is trapped out. |
| 7. | " | " | 79MC | 77.25MC<br>81.75MC | 5 | " | | Check for response similar to Fig. 201. If necessary make compromise adjustment of A208, A209 and A210 for proper curve on each channel. |
| | | | 69MC | 67.25MC<br>71.75MC | 4 | | | |
| | | | 63MC | 61.25MC<br>65.75MC | 3 | | | |
| | | | 57MC | 55.25MC<br>59.75MC | 2 | | | |
| 8. | " | " | 57MC | 43.5MC<br>45.5MC | 2 | " | A212, A213 | Adjust A212 for MINIMUM response at 43.5MC marker and A213 for MINIMUM response at 45.5MC marker. Retouch either or both for flat response consistent with MINIMUM amplitude at trap frequencies. |

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 9. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 213MC | 215.75MC | 13 | Vert. Amp. thru 47K across Video Det. load | A214 | Adjust to place marker in trap notch as in Fig. 202. |
| 10. | " | " | 207MC | 209.75MC | 12 | " | | Marker must fall into trap notch on each channel within plus or minus 750KC of specified marker frequency. If not, make compromise adjustment of A214 for all high band channels. |
| | | | 201MC | 203.75MC | 11 | | | |
| | | | 195MC | 197.75MC | 10 | | | |
| | | | 189MC | 191.75MC | 9 | | | |
| | | | 183MC | 185.75MC | 8 | | | |
| | | | 177MC | 179.75MC | 7 | | | |
| 11. | " | " | 85MC | 87.75MC | 6 | " | A215 | Adjust to place marker in trap notch as in Fig. 202. |
| 12. | " | " | 79MC | 81.75MC | 5 | " | | Marker must fall into trap notch on each channel within plus or minus 750KC of specified marker frequency. If not, make compromise adjustment of A215 for all low band channels. |
| | | | 69MC | 71.75MC | 4 | | | |
| | | | 63MC | 65.75MC | 3 | | | |
| | | | 57MC | 59.75MC | 2 | | | |

UHF IF ALIGNMENT

Remove the UHF Tuner from the side of the VHF Tuner so that UHF input receptacle of VHF Tuner is accessible. Coils are accessible thru opening in the side of tuner.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 13. | Fig. 203 | High side thru matching network to UHF input receptacle. Low side to chassis. | 44MC (10MC Swp) | 41.25MC 45.75MC | UHF | Vert. Amp. thru 47K to point ⏀. Low side to chassis. | A216, A217 | Adjust for maximum gain and symmetry of response similar to Fig. 204 with markers as shown. |

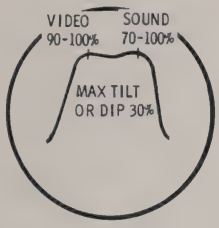



FIG. 201

FIG. 202

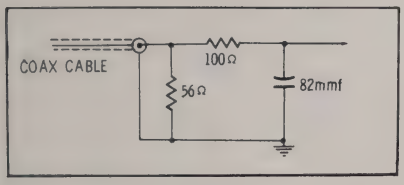



FIG. 203

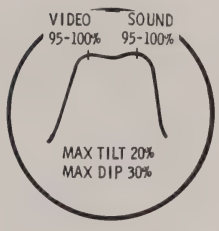
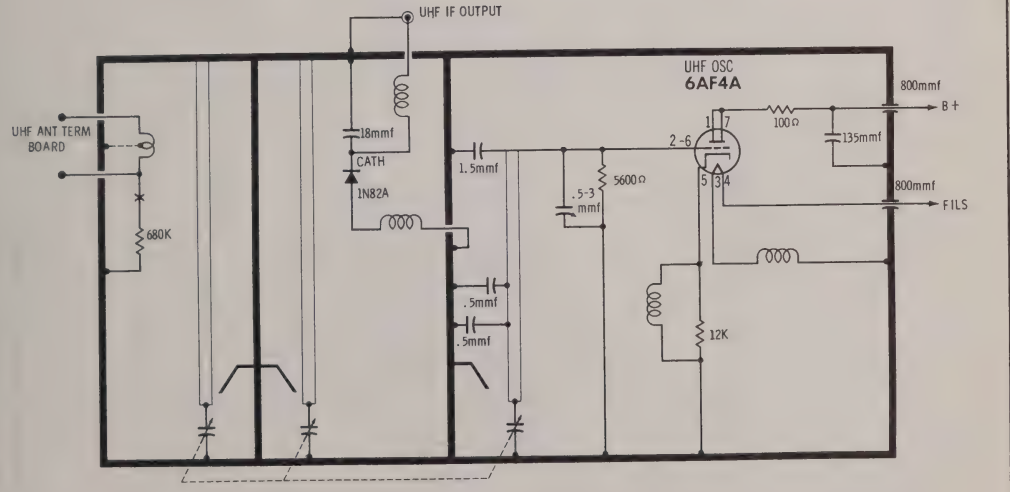



FIG. 204

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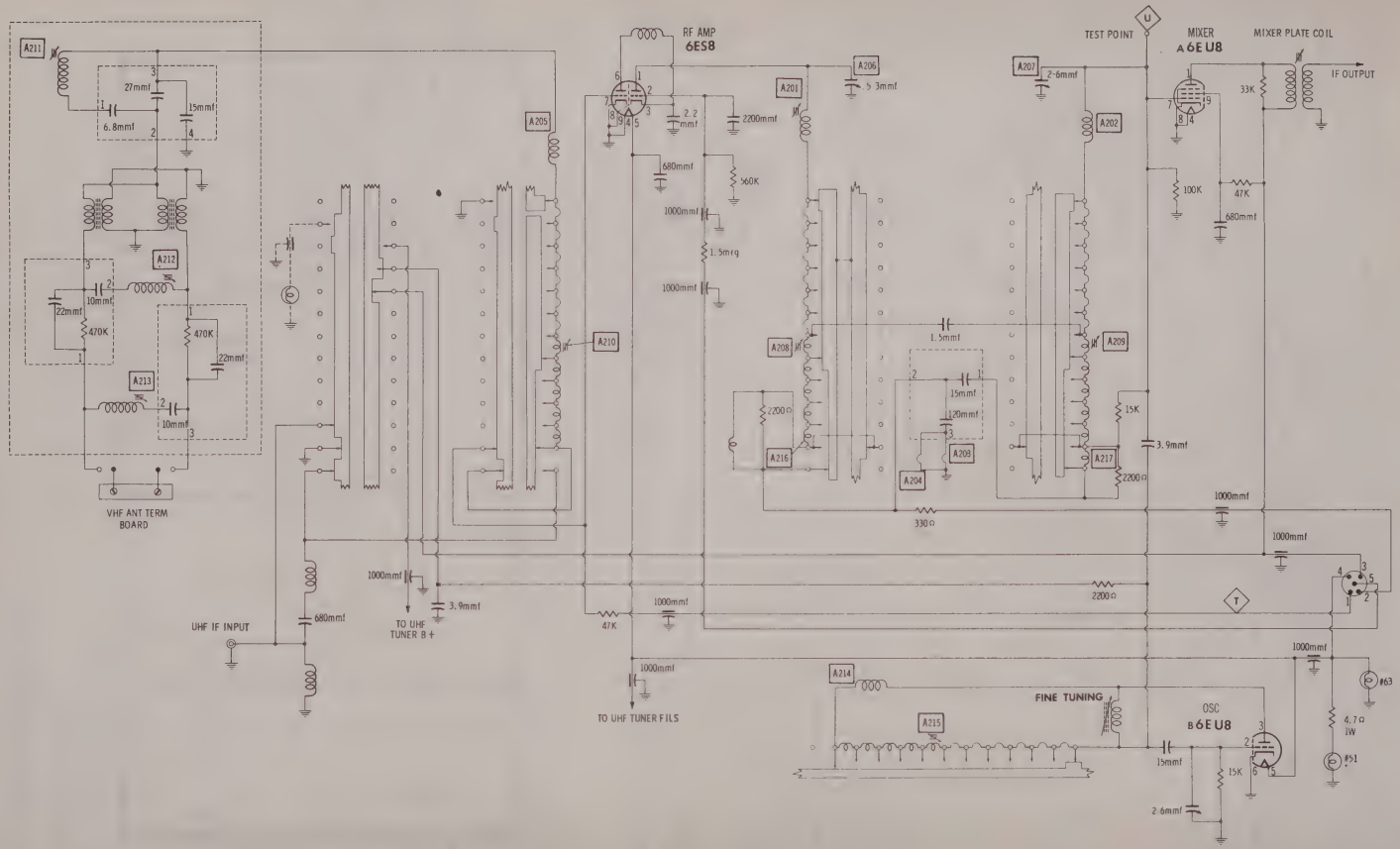
UHF TUNER TT-601

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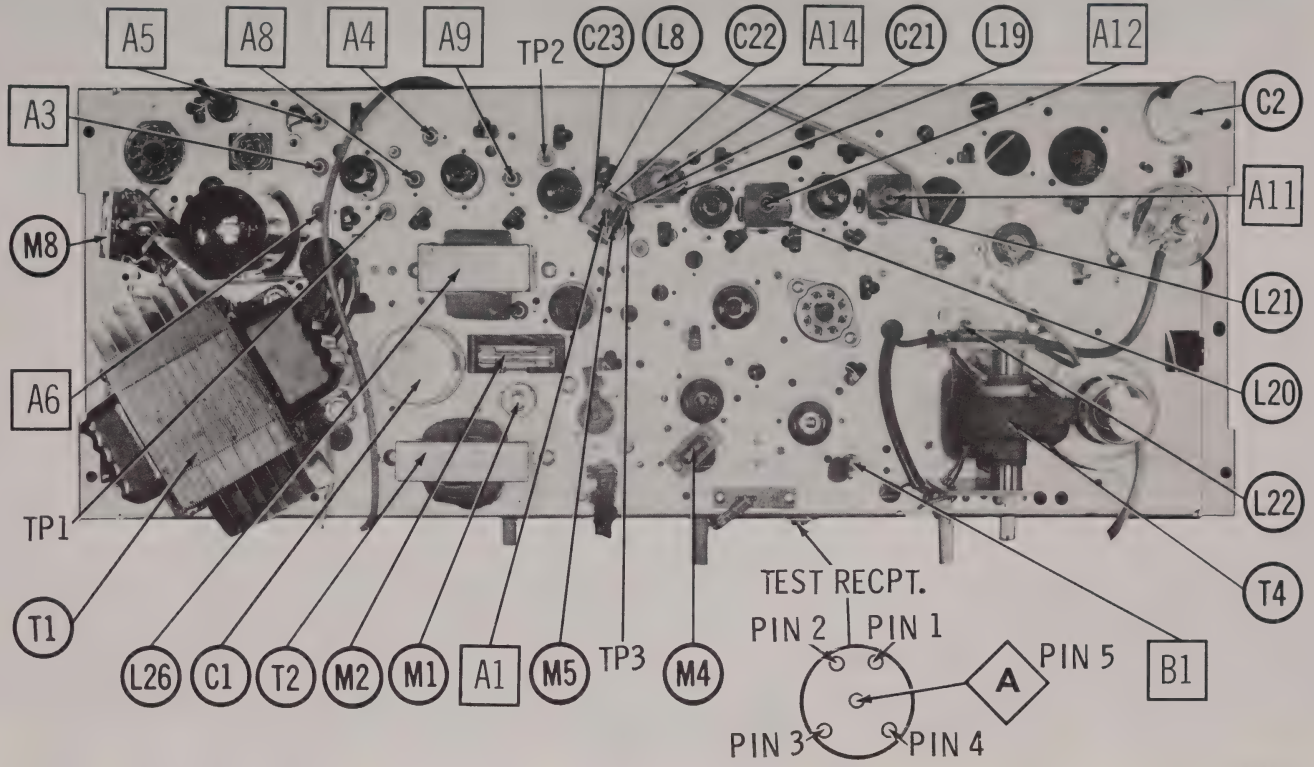
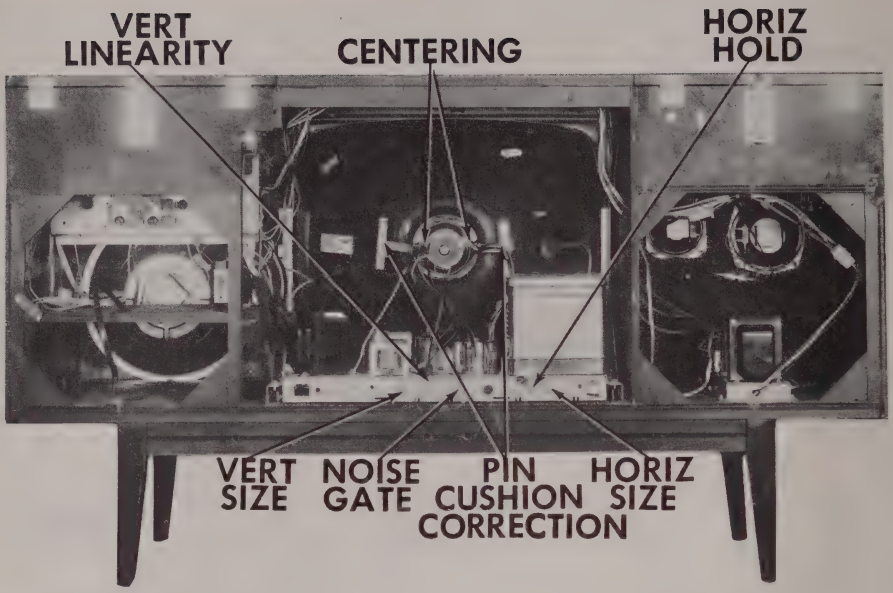
# VHF TUNER WITH UHF PROVISIONS OPTT-130Y




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TP1 | 120V | 1ST VIDEO IF SCREEN | PIN 1 | -.6V | IF AGC | PIN 3 | 0V GROUND |
| TP2 | 0V | 3RD VIDEO IF GRID | PIN 2 | 225V | HORIZ MULT PLATE LOAD | PIN 4 | .6V HORIZ AFC |
| TP3 | -4V | VIDEO DET. | | | | PIN 5 | 245V FUSED B+ |

TV CHASSIS - TOP VIEW

MOTOROLA CHASSIS
TS-574, TS-574Y




CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern. Adjust the Brightness and Contrast controls for a normal picture.

Short out the AFC voltage by connecting a clip lead from pin 4 of Test Receptacle to chassis. Connect a .1mfd, 400 volt capacitor from pin 2 of Test Receptacle to chassis.

Adjust Horizontal Hold to the point where the picture is almost stable horizontally.

Remove the capacitor and adjust the Horizontal Frequency Slug (B1) to the point where the picture is almost stable horizontally.

Remove the clip lead from pin 4 of Test Receptacle and chassis. Adjust the Horizontal Hold control until the picture is synchronized horizontally.

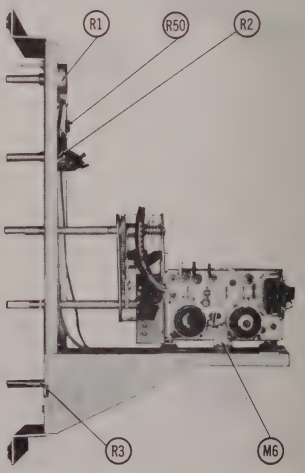
## DISASSEMBLY INSTRUCTIONS

TV CHASSIS REMOVAL MODEL 23SF3W-FM

1. Remove 16 wood screws holding rear cover.
2. Disconnect VHF antenna leads.
3. Remove rear cover.
4. Unplug all necessary cables and leads.
5. Disconnect hi voltage lead, picture tube socket, and yoke plug.
6. Remove 4 chassis bolts. Remove chassis.

PICTURE TUBE REMOVAL

It is necessary to remove the TV chassis for picture tube removal.




VHF TUNER- TV CONTROL BRACKET

PHOTOFACT® Folder

**PRODUCTION CHANGE
BULLETIN 268**

PRODUCTION CHANGE
BULLETIN 268

| SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 2 IN SET 384 | |
|---|---|
| | Emerson Models 1212, 1213, 1228, 1229, 1238, 1239, 1244, 1245, 1246, 1247, 1272, 1273, 1274, 1275, 1280, 1281 (Ch. 120351E, 120352G, 120353E, 120354G, 120360E, 120361G ) were covered in PHOTOFACT Folder 2 - Set 384.<br>Models 1400, 1401, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413 (Ch. 120367S, 120368U, 120375S, 120376U) are electrically similar except for the following changes. |
| Ch. 120367S, 120375S | TUNER CHANGE<br>The Tuner is changed to Part #471035. |
| Ch. 120368U, 120376U | TUNER CHANGE<br>The Tuner is changed to Part #471036 (VHF Section) and Part #471037 ( UHF Section).<br>A schematic diagram showing the new Tuners is given in this bulletin. |

EMERSON MODELS 1400, 1401, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413 ( CH. 120367S, 120368U, 120375S, 120376U)

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Safety Glass | 520258 | |
| Mask | 560914 | |
| Knob | 460920 | Channel Selector, Models 1400, 1406, 1408, 1410, 1412 |
| Knob | 460928 | Channel Selector, Models 1401, 1407, 1409, 1411, 1413 |
| Knob | 460918 | Fine Tuning |
| Knob | 460923 | UHF Tuning, Models 1401, 1407, 1409, 1411, 1413 |
| Knob | 460921 | UHF Dial, Models 1401, 1407, 1409, 1411, 1413 |
| Knob | 460922 | Off-On, Volume |
| Knob | 460919 | Contrast |
| Cabinet | | Table Model (Specify Finish), Models 1400, 1401 |
| Cabinet | | Console (Specify Finish), Models 1406, 1407 |
| Cabinet | | Swivel Base Console (Specify Finish), Models 1408, 1409 |
| Cabinet | | Lo-Boy (Specify Finish), Models 1410, 1411, 1412, 1413 |
| Cabinet Base | | (Specify Finish), Models 1410, 1411, 1412, 1413 |

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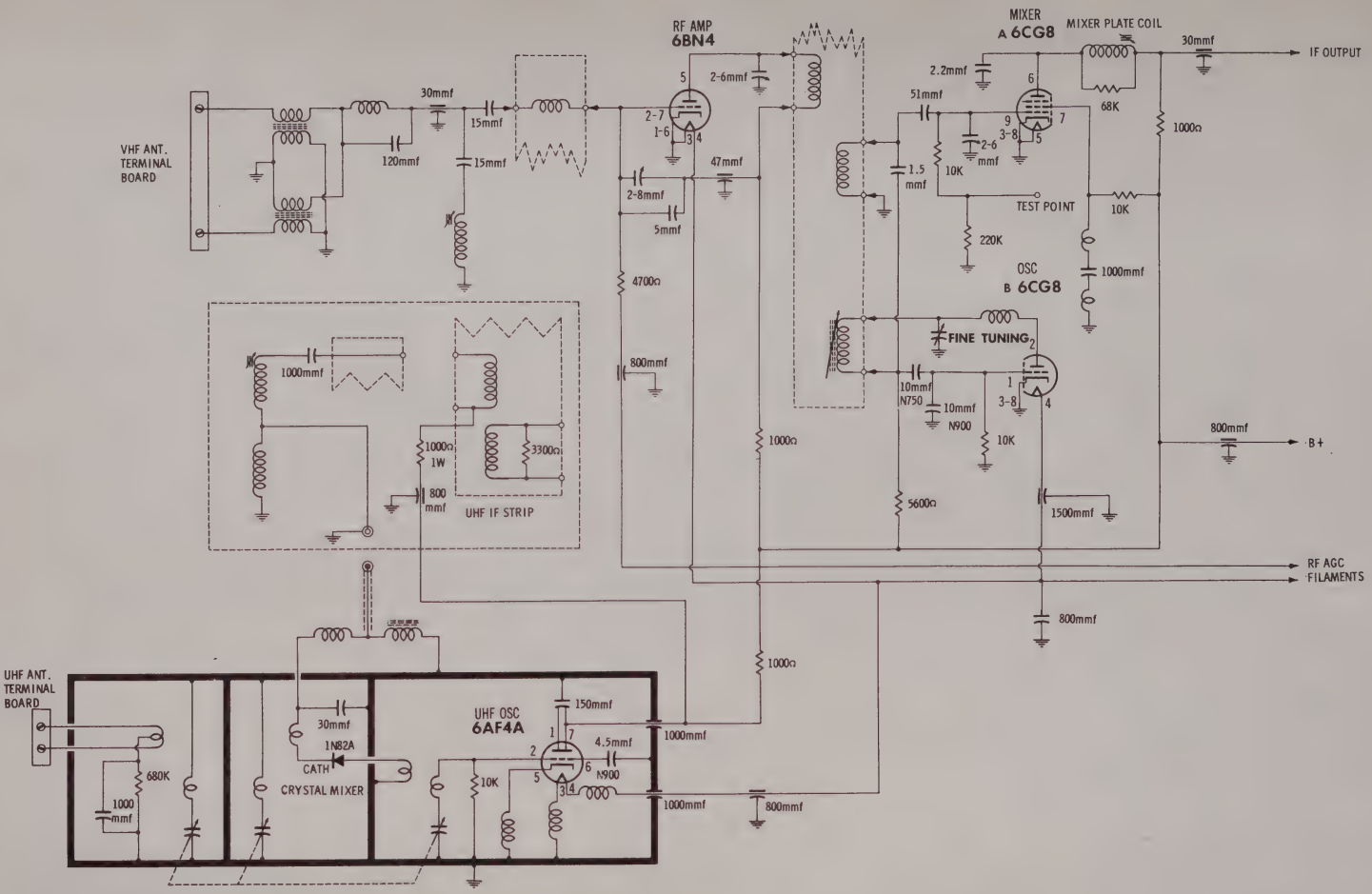


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Howard W. Sams & Co., Inc.

# TUNER #471035, 471036, 471037

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 476

PACKARD BELL MODELS 23DC5, 23DC6 ( CH. 98D6 )

Packard-Bell Model 21DC16 (Ch. 98D6) was covered in PHOTOFACT Folder 1 - Set 476.

Models 23DC5, 23DC6 (Ch. 98D6) are electrically similar. The following changes are made by the manufacturer during late production.

COMPONENT CHANGES

C11 is increased from 10mmf to 22mmf (Part #23805).

C42 is omitted.

C73 is decreased from .047mfd to .033mfd (Part #23142).

R88 is decreased from 1meg to 470K (Part #73157).

C75 is omitted.

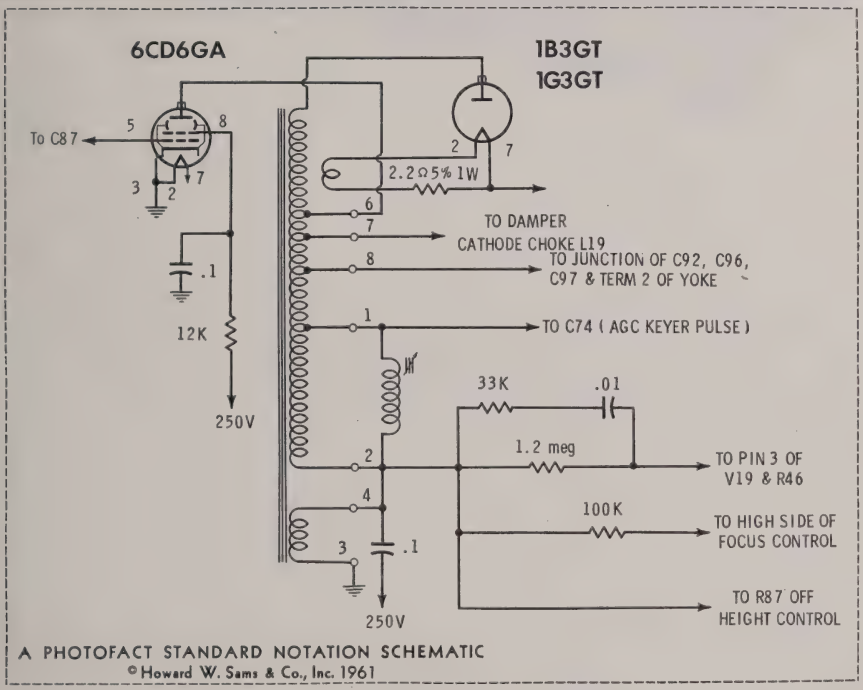
T3 (Vertical Output Transformer) is changed to Part #89501.

T5 (Horizontal Output Transformer) is changed to Part #89502A.

A schematic diagram showing the new transformer is given in this bulletin.

COMPONENTS ADDED

Two 10Ω Resistors (Part #73001) in parallel are added between Z of T1 (Power Transformer) and Z of the Pilot Lamps on the Channel Selector Switch

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## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Safety Glass | 55090 | |
| Mask | 55120 | Picture Tube |
| Knob | 52236 | Fine Tuning |
| Knob | 52307 | Volume |
| Knob | 52257 | Contrast |
| Knob | 52293 | Brightness, Tone, Vertical Hold |
| Knob | 52183 | Pix Fidelity |

PHOTOFACT® Folder

**FANON**
**MODEL 3320**

FANON
MODEL 3320

FANON
MODEL 3320

| | |
|---|---|
| TRADE NAME | Fanon Model 3320 |
| MANUFACTURER | Fanon Electronic Sales Corp., A Div. of Fanon Electronic Industries, Inc., 439 Frelinghuysen Ave., Newark 12, N. J. |
| TYPE SET | AC Operated 5 Tube Audio Amplifier<br>(Same versions may use a 4 speed manual record player cabinet top, Model 3600) |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles RATING 60 Watts, .58 Amp. @117 Volts AC |

SET 548 FOLDER 4

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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KX722

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | Mic. 1 Preamp. - Mic. 2 Preamp. | 12AX7 | V3 | Output | 7189A |
| V2 | AF Amp. - Phase Inv. | 12AX7 | V4 | Output | 7189A |
| | | | V5 | Rectifier | EZ81/6CA4 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA FANON PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ■20 | 400 | 173-08 | AFH3-36 | C0270 | FP376.5 | TMT-3730 | TVL-3780 | |
| B | ■20 | 400 | | | | | | | |
| C | ▲10 | 300 | | | | | | | |
| C2A | 5 | 100 | 172-06 | PRS1400 | NLW5-150 | TT150X5 | MLV5-150 | TE-1504 | |
| B | 5 | 100 | | PRS1400 | NLW5-150 | TT150X5 | MLV5-150 | TE-1504 | |

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C3 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C4 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C5 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C6 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C7 | .002 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C8 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C9 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C10 | .033 400V | | P488N-033 | DD-303 | CUB6S33 | 4DP-2-333 | GEM-4133 | 6TM-S33 |
| C11 | .033 400V | | P488N-033 | DD-303 | CUB6S33 | 4DP-2-333 | GEM-4133 | 6TM-S33 |

## CONTROLS

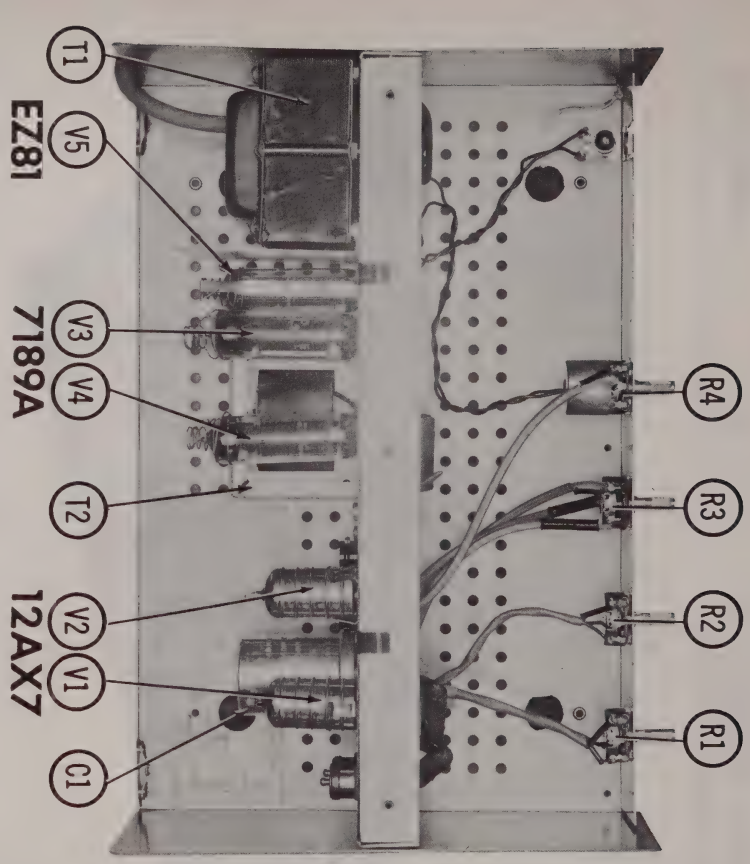
| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA FANON PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | 203-70 | B-70 | A47-1meg-Z | Q13-137 | U53 | Mic. 1 |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R2A | 1meg | ½ | 203-70 | B-70 | A47-1meg-Z | Q13-137 | U53 | Mic. 2 |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R3A | 2meg | ½ | 203-93 | BT-78 | A47F3-2meg-Z | Q18-139X | | Phono-Radio |
| | 1meg Tap | | | | | | | |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | | |
| R4A | 2meg | ½ | 200-92 | B-76 | A47-2meg-Z | Q13-139 | U55 | Tone |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| C | Switch | | | KR-1 | SWE-12 | 76-1 | US-26 | Power Off-On |
| R5A | 150K | ½ | 203-40 | TT-46 | B47-150K-S | B11-328 | TA184L | Bias Adjust |
| B | Shaft | | | Not Req. | Not Req. | TM4 | Not Req. | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS | ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| R6 | 2.2meg 1W | | | | R9 | 470K | | | |
| R7 | 470K | | | | R10 | 220K | | | |
| R8 | 2.2meg 1W | | | | R11 | 220K | | | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS (cont)

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R12 | 220K | | | | R20 | 100K | | | |
| R13 | 220K | | | | R21 | 6800Ω | | | |
| R14 | 100K | | | | R22 | 270K | | | |
| R15 | 470K | | | | R23 | 270K | | | |
| R16 | 470Ω | | | | R24 | 27K 1W | | | |
| R17 | 1.8meg | | | | R25 | 270Ω 1W | | | |
| R18 | 100K | | | | R26 | 220K 1W | | | |
| R19 | 6800Ω | | | | R27 | 47K | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | FANON PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V @ .58A | 600VCT @ .075A DC | 6.3VCT @ 3.2A | 251-06 | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | FANON PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 7800Ω CT | 70V Tap @ 16Ω, 8Ω, 4Ω | 252-14 | | | | | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | FANON PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M1 | .001A | 203-40 | 1N1763 | 10 | SR200 | |

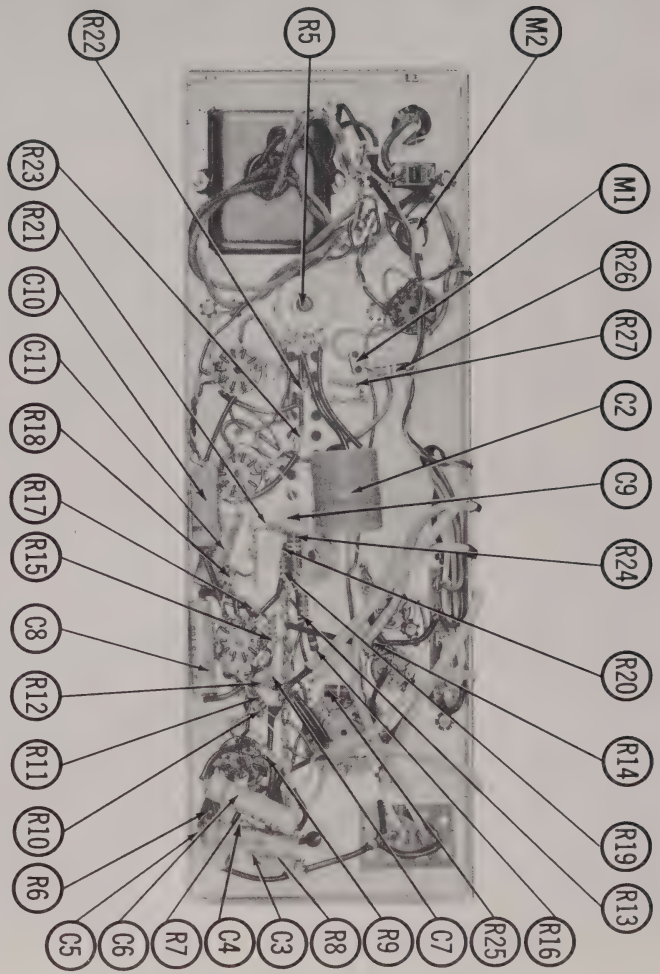
## FUSES

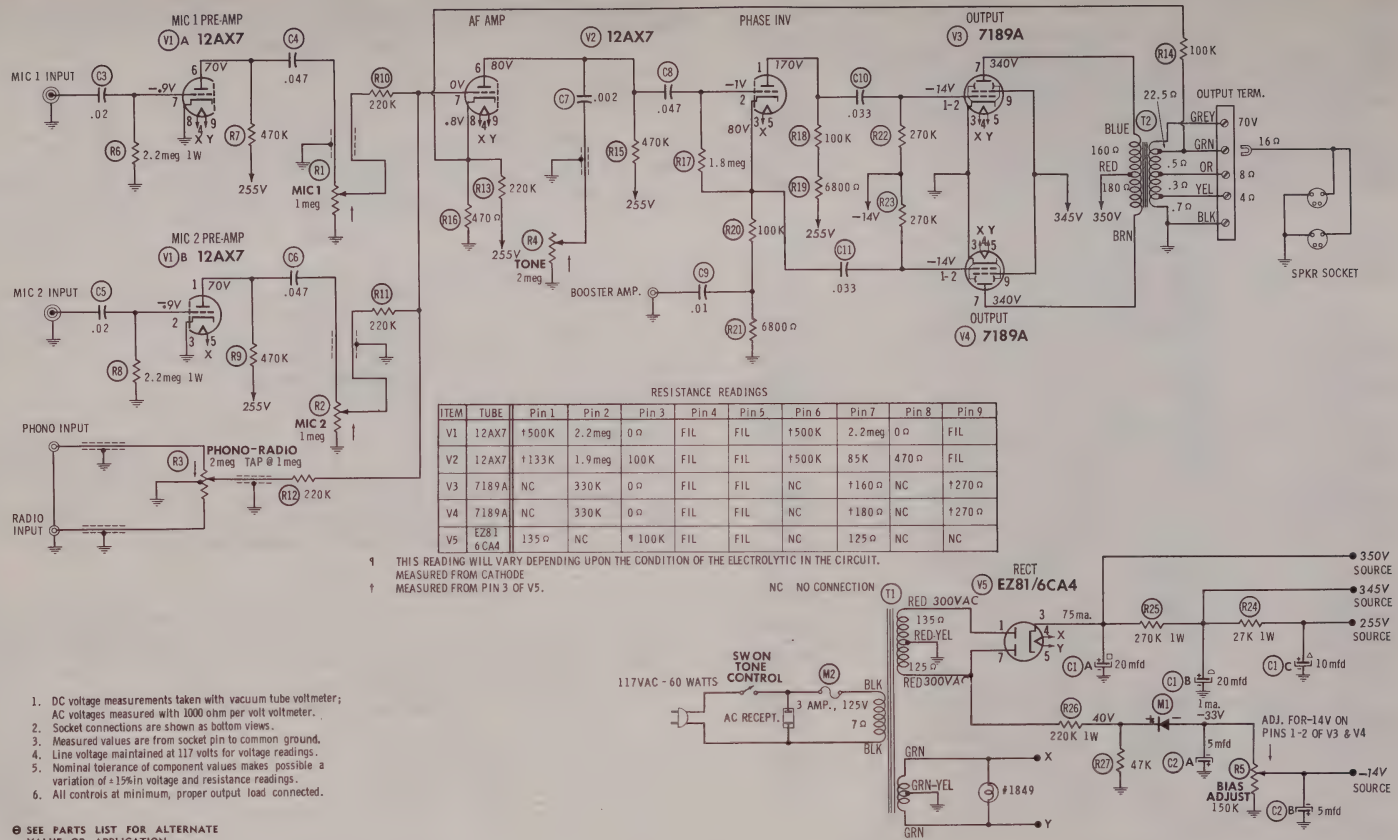
| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | FANON PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M2 | 3AG | 3A 125V S/B | | | 313003 (3AG 3A 125V) | 342001 | MDX 3 | HKP |

## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |

## CHASSIS—BOTTOM VIEW






RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | †500K | 2.2meg | 0Ω | FIL | FIL | †500K | 2.2meg | 0Ω | FIL |
| V2 | 12AX7 | †133K | 1.9meg | 100K | FIL | FIL | †500K | 85K | 470Ω | FIL |
| V3 | 7189A | NC | 330K | 0Ω | FIL | FIL | NC | †160Ω | NC | †270Ω |
| V4 | 7189A | NC | 330K | 0Ω | FIL | FIL | NC | †180Ω | NC | †270Ω |
| V5 | EZ81 6CA4 | 135Ω | NC | ¶ 100K | FIL | FIL | NC | 125Ω | NC | NC |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT. MEASURED FROM CATHODE

† MEASURED FROM PIN 3 OF V5.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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**FANON MODEL 3320**

PHOTOFACT® Folder

# FANON MODEL 3370

FANON
MODEL 3370

FANON
MODEL 3370

| | |
|---|---|
| TRADE NAME | Fanon Model 3370 |
| MANUFACTURER | Fanon Electronic Sales Corp., A Div. of Fanon Electronic Industries, Inc., 439 Frelinghuysen Ave., Newark 12, N. J. |
| TYPE SET | AC Operated 8 Tube Audio Amplifier |
| POWER SUPPLY | 110 – 120 Volts AC, 60 Cycles RATING 100 Watts, .9 Amp. @117 Volts AC |

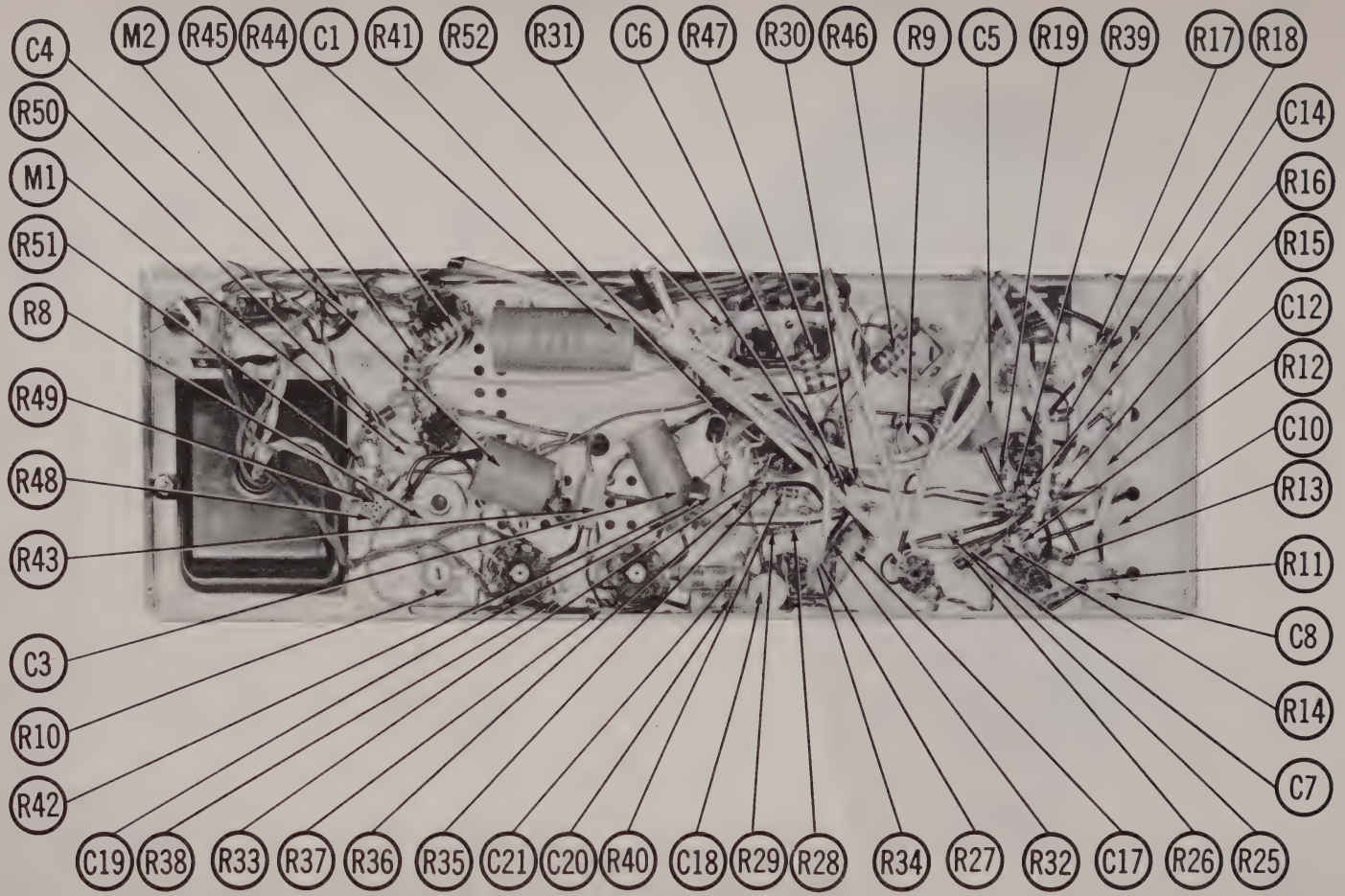
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

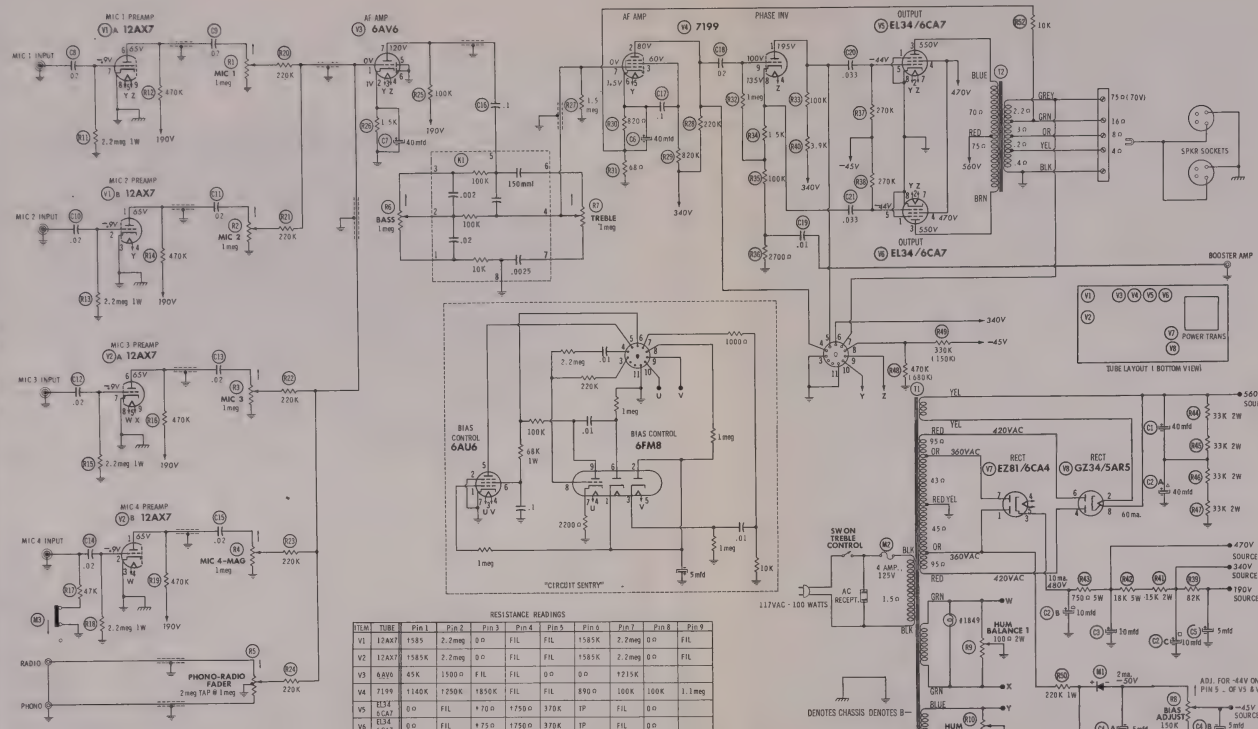
KX723



SET 548 FOLDER 5




CHASSIS BOTTOM VIEW




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | 1585 | 2.2meg | 0Ω | FIL | FIL | 1585K | 2.2meg | 0Ω | FIL |
| V2 | 12AX7 | 1585K | 2.2meg | 0Ω | FIL | FIL | 1585K | 2.2meg | 0Ω | FIL |
| V3 | 6AV6 | 45K | 1500Ω | FIL | FIL | 0Ω | 0Ω | 7215K | | |
| V4 | 7199 | 1140K | 1250K | 1850K | FIL | FIL | 890Ω | 100K | 100K | 1.1meg |
| V5 | EL34/6CA7 | 0Ω | FIL | +70Ω | +750Ω | 370K | TP | FIL | 0Ω | |
| V6 | EL34/6CA7 | 0Ω | FIL | +75Ω | 1750Ω | 370K | TP | FIL | 0Ω | |
| V7 | EZ81/6CA4 | 45Ω | NC | ¶ INF | FIL | FIL | NC | 43Ω | TP | NC |
| V8 | GZ34/5AR4 | NC | ¶ 100K | TP | 140Ω | TP | 138Ω | TP | ¶ 100K | |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V8.
† MEASURED FROM PIN 3 OF V7.
NC NO CONNECTION
TP TIE POINT

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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FISHER
MODEL 330T

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE |
|---|---|---|
| V1 | Mic 1 Preamp. - Mic 2 Preamp. | 12AX7 (ECC83) * |
| V2 | Mic 3 Preamp. - Mic 4 Preamp. | 12AX7 (ECC83) * |
| V3 | AF Amplifier | 6AV6 |

| ITEM No. | USE | TYPE |
|---|---|---|
| V4 | AF Amp. -Phase Inv. | 7199 |
| V5 | Output | EL34/6CA7 |
| V6 | Output | EL34/6CA7 |
| V7 | Rectifier | EZ81/6CA4 |
| V8 | Rectifier | GZ34/5AR4 |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA FANON PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1 | 40 | 350 | 170-15 | PRS1670 | BR4035 | TC78 | TD-40-350 | TVA-1611 | |
| C2A | ▲40 | 350 | 173-09 | AFH3-53 | C0400 | FP399.5 | TMT-3865 | TVL-3962 | |
| B | ▲10 | 500 | | | | | | | |
| C | ■10 | 400 | | | | | | | |
| C3 | 10 | 500 | 170-17 | PRS1810 | BR1250 | TC82 | TD-10-500 | TVA-1903 | |
| C4A | 5 | 100 | 172-06 | PRS1400 | NLW5-150 | TT150X5 | MLV5-150 | TE-1504 | |
| B | 5 | 100 | | PRS1400 | NLW5-150 | TT150X5 | MLV5-150 | TE-1504 | |
| C5 | 5 | 350 | 170-19 | PRS1600 | BR435 | TC60 | TD-8-350 | TVA-1603 | |
| C6 | 40 | 10 | | PTT44 | NLW40-10 | TT15X40 | MLV40-12 | TE-1133 | |
| C7 | 40 | 10 | | PTT44 | NLW40-10 | TT15X40 | MLV40-12 | TE-1133 | |

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C8 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C9 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C10 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C11 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C12 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C13 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C14 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C15 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C16 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C17 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C18 | .02 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C19 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C20 | .033 400V | | P488N-033 | DD-303 | CUB6S33 | 4DP-2-333 | GEM-4133 | 4TM-S33 |
| C21 | .033 400V | | P488N-033 | DD-303 | CUB6S33 | 4DP-2-333 | GEM-4133 | 4TM-S33 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA FANON PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | 203-70 | B-70 | A47-1meg-Z | Q13-137 | U53 | Mic. 1 |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R2A | 1meg | ½ | 203-70 | B-70 | A47-1meg-Z | Q13-137 | U53 | Mic. 2 |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R3A | 1meg | ½ | 203-70 | B-70 | A47-1meg-Z | Q13-137 | U53 | Mic. 3 |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R4A | 1meg | ½ | 203-70 | B-70 | A47-1meg-Z | Q13-137 | U53 | Mic. 4-Mag. |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R5A | 2meg 1meg Tap | ½ | 203-93 | BT-78 | A47F3-2meg | Q18-139X | | Phono-Radio Fader |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | | |
| R6A | 1meg | ½ | 203-70 | B-70 | A47-1meg-Z | Q13-137 | U53 | Bass |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R7A | 1meg | ½ | 200-72 | B-70-S | A47-1meg-Z | Q13-137 | U53 | Treble |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | SWE-12 | 76-1 | US-2 6 | Power Off-On |
| R8A | 150K | ½ | 203-40 | TT-46 | B47-150K-S | B11-328 | TA184L | Bias Adjust |
| B | Shaft | | | Not Req. | Not Req. | TM4 | Not Req. | |
| R9A | 100Ω | 2(WW) | 209-03 | WN-101 | A43-100 | W11-084 | R100L | Hum Balance #1 |
| B | Shaft | | | Not Req. | FKS 1/4 | SK5 | Not Req. | |
| R10A | 100Ω | 2(WW) | 209-03 | WN-101 | A43-100 | W11-084 | R100L | Hum Balance #2 |
| B | Shaft | | | Not Req. | FKS 1/4 | SK5 | Not Req. | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R11 | 2.2meg 1W | | | |
| R12 | 470K | | | |
| R13 | 2.2meg 1W | | | |
| R14 | 470K | | | |
| R15 | 2.2meg 1W | | | |
| R16 | 470K | | | |
| R17 | 47K | | | |
| R18 | 2.2meg 1W | | | |
| R19 | 470K | | | |
| R20 | 220K | | | |
| R21 | 220K | | | |
| R22 | 220K | | | |
| R23 | 220K | | | |
| R24 | 220K | | | |
| R25 | 100K | | | |
| R26 | 1500Ω | | | |
| R27 | 1.5meg | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R28 | 220K | | | |
| R29 | 820K | | | |
| R30 | 820K | | | |
| R31 | 68Ω | | | |
| R32 | 1meg | | | |
| R33 | 100K | | | |
| R34 | 1500Ω | | | |
| R35 | 100K | | | |
| R36 | 2700Ω | | | |
| R37 | 270K | | | |
| R38 | 270K | | | |
| R39 | 82K | | | |
| R40 | 3900Ω | | | |
| R41 | 15K 2W | | | |
| R42 | 18K 2W | | | |
| R43 | 750Ω 5W | | | |
| R44 | 33K 2W | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS (cont)

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R45 | 33K 2W | | | |
| R46 | 33K 2W | | | |
| R47 | 33K 2W | | | |
| R48 | 470K | | | (680K) * |
| R49 | 330K | | | (150K) * |
| R50 | 220K 1W | | | |
| R51 | 100K | | | |
| R52 | 10K | | | |

* Alternate.

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | FANON PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Tone Comp. | 150mmf, .002mfd, .0025mfd, .02mfd, 10K, 100K, 100K | 192-04 | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FANON PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | PRI. 117V Ⓐ .9A | SEC. 1 340VCT Ⓐ .070A Tap Ⓐ 720VCT Ⓐ .010A | SEC. 2 5A Ⓐ 1.9A | 251-08 | | | | | |
| | SEC. 3 6.3V Ⓐ .3A | SEC. 4 6.3V Ⓐ 5.2A | SEC. 5 | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | FANON PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 4000Ω CT | 70V Tap Ⓐ 16Ω, 8Ω, 4Ω | 252-16 | | | | | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | FANON PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M1 | .002A | 291-03 | 1N1763 | F4 | SR200 | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | FANON PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M2 | 3AG | 4A 125V S/B | | | 313004 (3AG 4A 125V) | 342001 | MDX 4 | HKP |

## MISCELLANEOUS

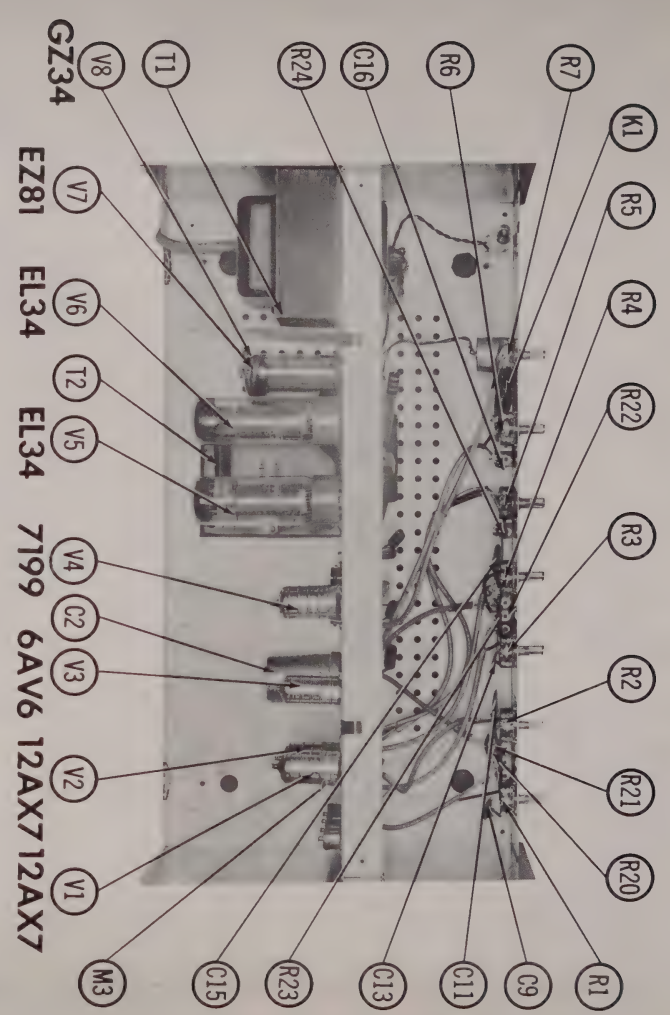
| ITEM No. | PART NAME | FANON PART No. | NOTES |
|---|---|---|---|
| M3 | Switch | | Phono-Magnetic (Slide Type, SPDT) |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

## CHASSIS—TOP VIEW



PHOTOFACT® Folder

# GRUNDIG MAJESTIC MODELS SO101/60PX, SO102/60PX, SO150U, SO174B/U, SO190U

GRUNDIG MAJESTIC MODELS
SO101/60PX, SO102/60PX,
SO150U, SO174B/U, SO190U

MODEL SO101/60PX

GRUNDIG MAJESTIC MODELS
SO101/60PX, SO102/60PX,
SO150U, SO174B/U, SO190U

| | |
|---|---|
| TRADE NAME | Grundig Majestic Models SO101/60PX, SO102/60PX, SO150U, SO174B/U, SO190U |
| IMPORTER | Majestic International Sales, 743 N. LaSalle Street, Chicago 10, Illinois |
| TYPE SET | AC Operated 8 Tube FM-AM Receiver With Stereo Amplifier and 4 Speed Automatic Record Changer |
| POWER SUPPLY | 110-125/220 Volts AC, 60 Cycles RATING 51 Watts, .5 Amp. @117 Volts AC |
| TUNING RANGE—BROADCAST | 510 — 1620KC FREQ. MOD. 88 — 108MC SHORT WAVE 5.9 — 16MC |

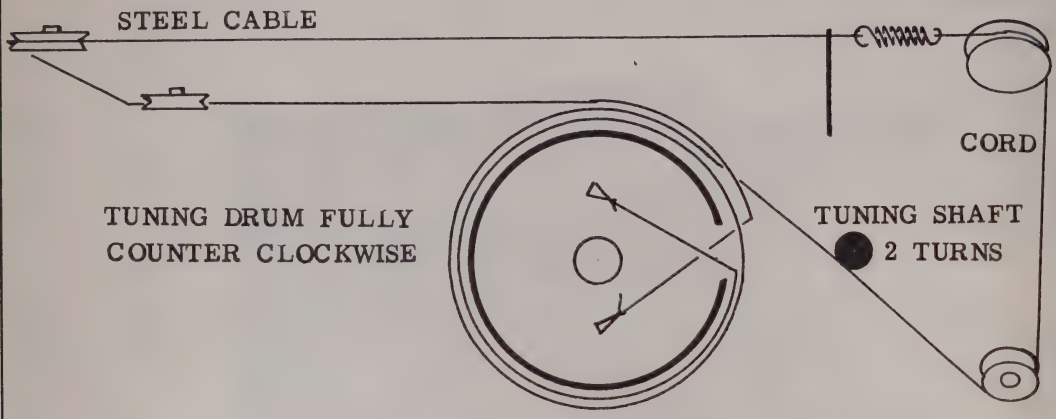
FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR TELEFUNKEN TW560 — PHOTOFACT SET 371 FOLDER 12 OR RECORD CHANGER MANUAL RC-10

SET 548 FOLDER 6

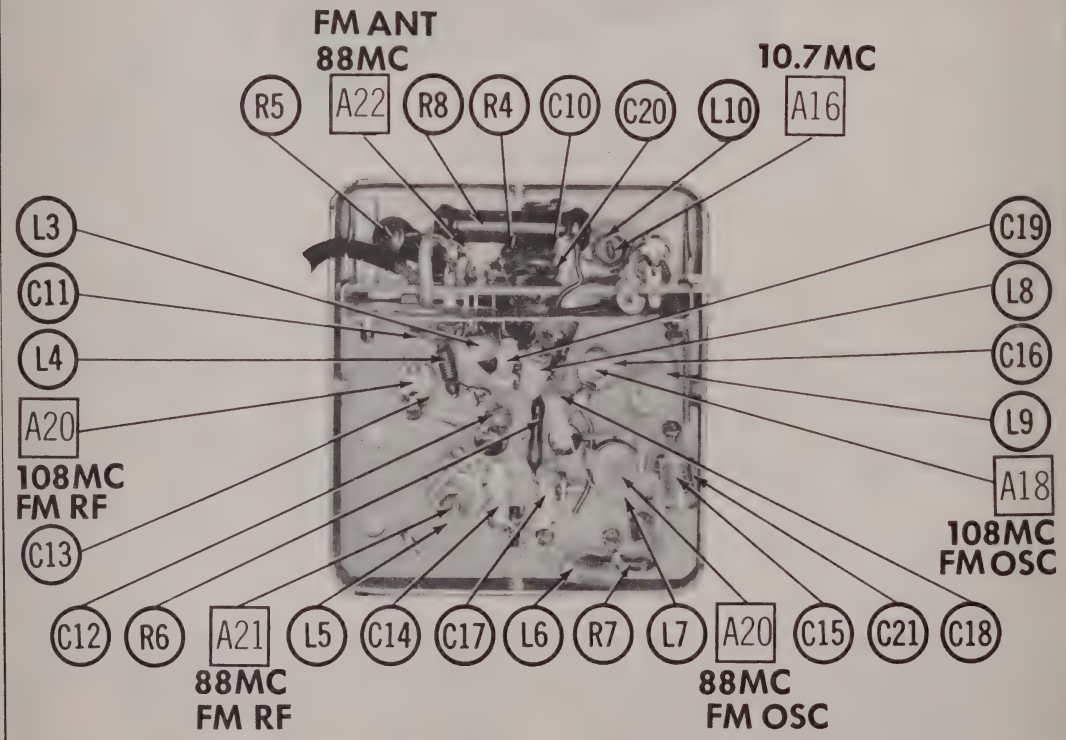
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KN697

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

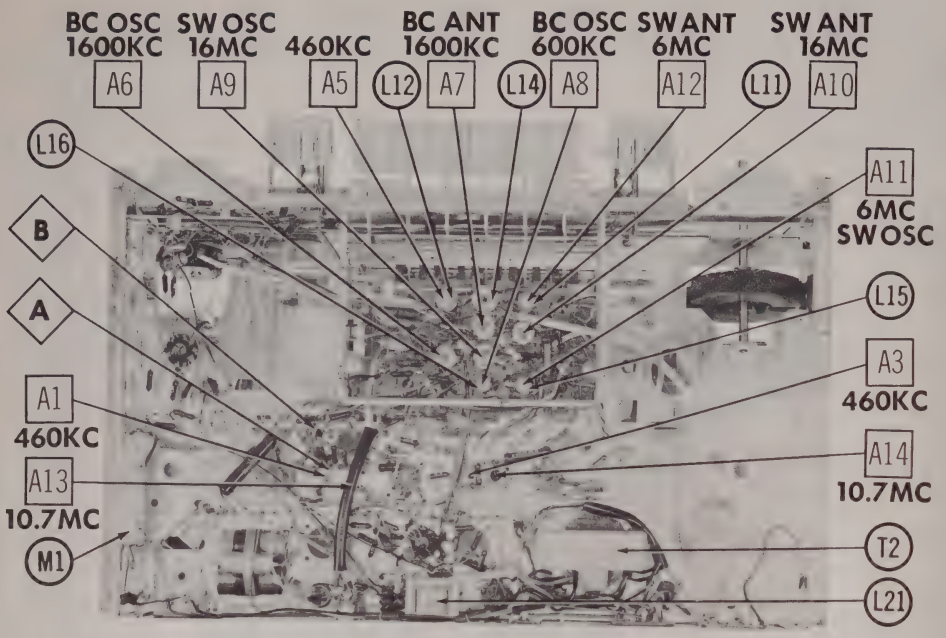



DIAL CORD STRINGING

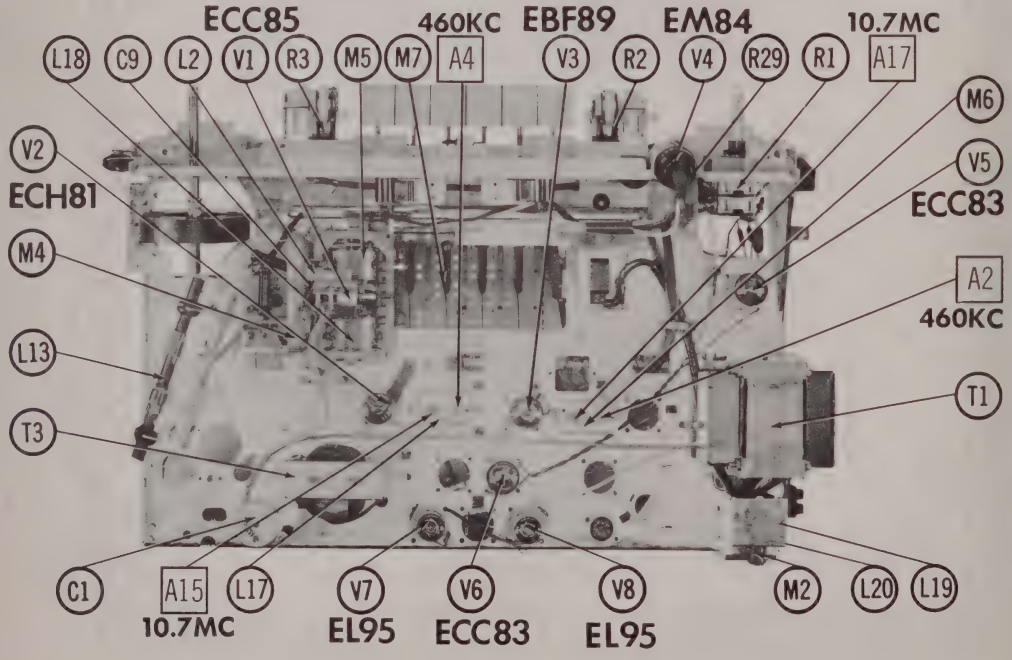



FM RF SUB CHASSIS

CHASSIS BOTTOM VIEW-CAPACITOR IDENT.




CHASSIS BOTTOM VIEW-ALIGN., INDUCTOR & MISC. IDENT.




CHASSIS-TOP VIEW

# ALIGNMENT INSTRUCTIONS

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 thru A5, A8, A11 thru A17, A20, A21, A22... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A18, A19..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

AM ALIGNMENT – SELECTOR IN AM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to pin 2 (grid) of AM Mixer. Low side to chassis. | 460KC (400∿ 30% AM) | (AM) Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | High side thru 200mmf to AM antenna terminal. Low side to chassis. | " | " | " | A5 | Adjust for MINIMUM output. |
| 3. | " | 1600KC | 1600KC | " | A6, A7 | Adjust for maximum output. |
| 4. | " | 600KC | 600KC | " | A8 | " |
| 5. | " | 16MC | (SW) 16MC | " | A9, A10 | " |
| 6. | " | 6MC | 6MC | " | A11, A12 | Adjust for maximum output. Repeat Steps 2 thru 6. |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 7. | Across FM antenna terminals. | 10.7MC (Unmod.) | (FM) Point of non-interference. | DC probe to point Ⓐ. Common to chassis. | A13, A14, A15, A16 | Adjust for maximum deflection. |
| 8. | " | " | " | DC probe to point Ⓑ. Common to point Ⓒ. | A17 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE – SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 7. | Across FM antenna terminals. | 10.7MC (450KC Swp) | (FM) Point of non-interference. | Vert. amp. to point Ⓐ. Low side to chassis. | A13, A14, A15, A16 | Disconnect stabilizing capacitor C3. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C3. |
| 8. | " | " | " | Vert. amp. to point Ⓑ. Low side to chassis. | A17 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A13 for maximum amplitude and straightness of crossover lines. |

FM RF ALIGNMENT – SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 9. | Across FM antenna terminals with 150Ω in each lead. | 108MC (Unmod.) | (FM) 108MC | DC probe to point Ⓐ. Common to chassis. | A18, A19 | Adjust for maximum deflection. |
| 10. | " | 88MC | 88MC | " | A20, A21, A22 | " |

FIG. 1

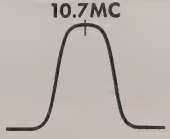
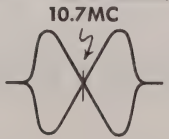
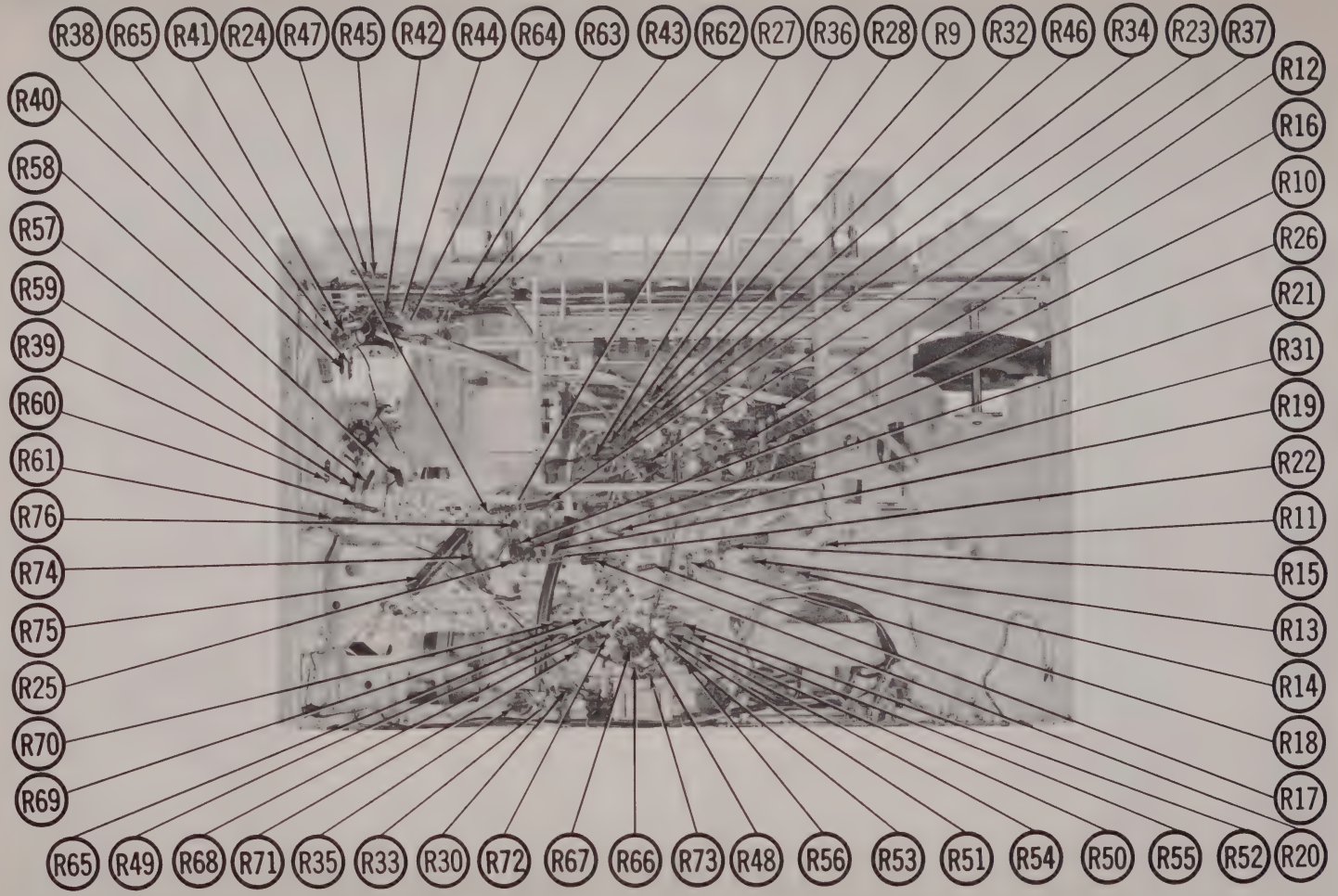
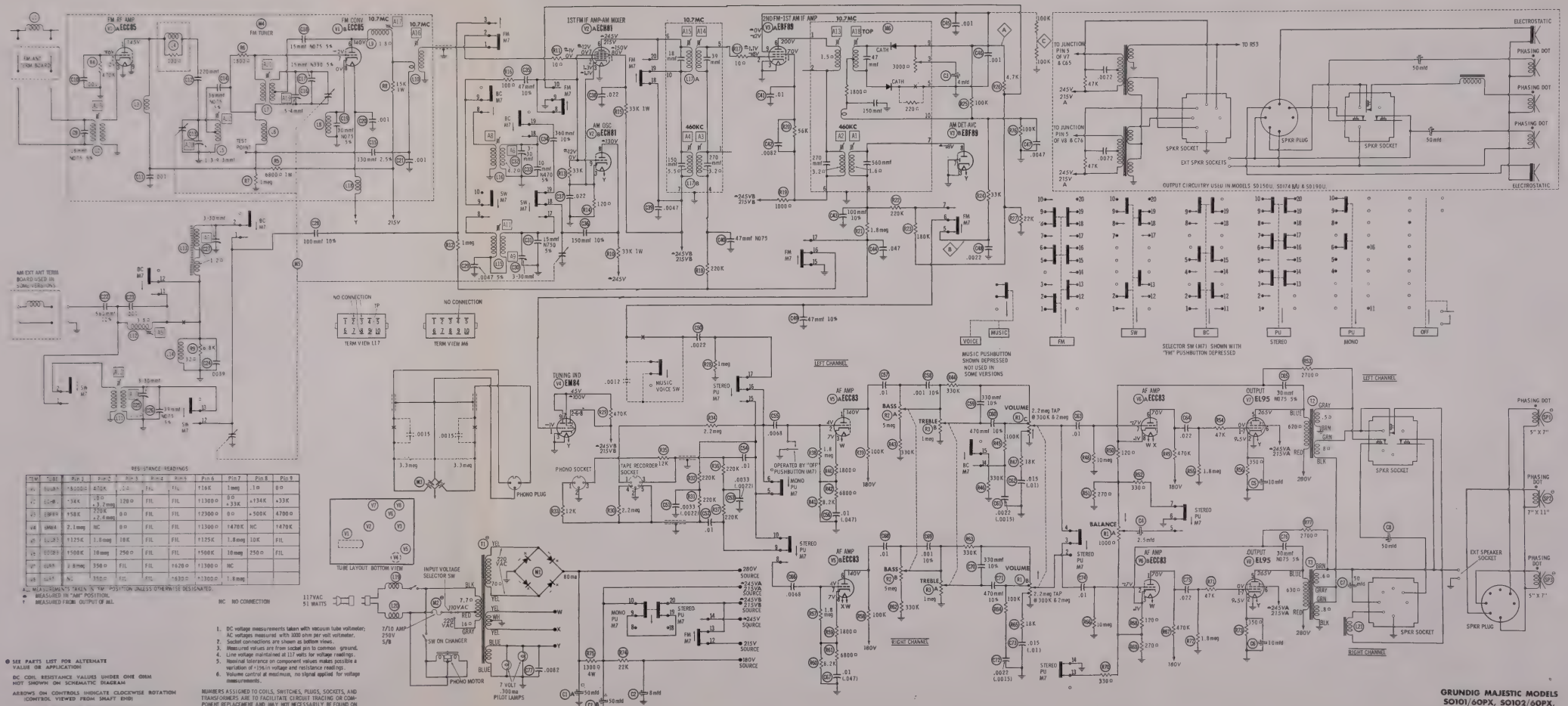



FIG. 2






CHASSIS BOTTOM VIEW-RESISTOR IDENT.




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pins 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | ECC85 | 1500Ω | 470K | 0Ω | FIL | FIL | †16K | 1 meg | .1Ω | 0Ω |
| V2 | ECH81 | 34K | 80 +3.7 meg | 120Ω | FIL | FIL | †1300Ω | 80 +33K | +134K | +33K |
| V3 | EBF89 | 958K | 750K +2.4 meg | 0Ω | FIL | FIL | †2300Ω | 0Ω | +500K | 4700Ω |
| V4 | ECH81 | 2.1 meg | NC | 0Ω | FIL | FIL | †1300Ω | †470K | NC | †470K |
| V5 | ECC83 | †125K | 1.8 meg | 18K | FIL | FIL | †125K | 1.8 meg | 10K | FIL |
| V6 | ECC83 | †500K | 10 meg | 250Ω | FIL | FIL | †500K | 10 meg | 250Ω | FIL |
| V7 | EL95 | 9.8 meg | 350Ω | FIL | FIL | FIL | †620Ω | †1300Ω | NC | |
| V8 | EL95 | NC | 350Ω | FIL | FIL | FIL | †630Ω | †1300Ω | 1.8 meg | |

A - MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
● MEASURED IN "AM" POSITION.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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**GRUNDIG MAJESTIC MODELS SO101/60PX, SO102/60PX, SO150U, SO174B/U, SO190U**

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | FM RF Amp. -FM Conv. | ECC85 | V5 | Left Channel AF Amp. - Right Channel AF Amp. | ECC83 |
| V2 | 1st FM IF Amp. - AM Mixer-AM Osc. | ECH81 | V6 | Left Channel AF Amp. - Right Channel AF Amp. | ECC83 |
| V3 | 2nd FM-1st AM IF Amp. - AM Det. -AVC | EBF89 | V7 | Left Channel Output | EL95 |
| V4 | Tuning Indicator | EM84 | V8 | Right Channel Output | EL95 |

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA Grundig Majestic PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ■50 | 350 | | A0390 | FP137 | TMS-1630 | TVL-1622 | | |
| B | ▲50 | 350 | | BR5035 | TC79 | TD-50-450 | TVA-1713 | | |
| C2 | 8 | 350 | | PRS1610 | BR835 | TC61 | TD-8-350 | TVA-1603 | |
| C3 | 4 | 70 | | PRS1400 | NLW4-150 | TT80X4 | MLV5-100 | TE-1403 | |
| C4 | 2.5 | 30 | | PTT89 | NLW3-50 | TT150X3 | MLV2-50 | TE-1302 | |
| C5 | 10 | 12 | | PTT53 | NLW10-15 | TT12X10 | MLV10-12 | TE-1128 | |
| C6 | 10 | 12 | | PTT53 | NLW10-15 | TT12X10 | MLV10-12 | TE-1128 | |
| C7 | 50 | 35 | | PRS1350 | NLW50-50 | TC39 | TD-50-50 | TVA-1308 | |
| C8 | 50 | 35 | | PRS1350 | NLW50-50 | TC39 | TD-50-50 | TVA-1308 | |

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C9 | 18 N075 5% | | | | | * | | |
| C10 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C11 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C12 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C13 | 1.3-9.3 | | | | | * | | |
| C14 | 36 N075 5% | | | | | CM-15E-131G | | |
| C15 | 130 2.5% | | | | | | | |
| C16 | .5-4 | | | | | * | | 10TCS-Q15 |
| C17 | 15 N330 5% | | | | | * | | |
| C18 | 15 N075 5% | | | | | * | | |
| C19 | 30 N075 5% | | | | | CCD-102 | B-210 | 5HK-D10 |
| C20 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C21 | .001 | | SI 1000 | D6-102 | BYA10D1 | CCD-561 | GP356 | 10TS-T56 |
| C22 | 560 10% | | | D6-561 | 5R5T56 | CCD-102 | B-210 | 5HK-D10 |
| C23 | .001 | | SI 1000 | D6-102 | BYA10D1 | CCD-392 | JL-239 | 10TS-D39 |
| C24 | .0039 | | SI 3900 | DD-392 | L10D39 | * | | |
| C25 | 3-30 | | | | | CCD-101 | GP310 | 10TS-T10 |
| C26 | 39 N075 5% | | | | | CM-20B-472J | MCJ464 | MS-247 |
| C27 | 3-30 | | | | | CCTN-150 | CN7-415 | 10TCU-Q15 |
| C28 | 100 10% | | NPO-SI 100 | D6-101 | L10T1 | * | | |
| C29 | .0047 5% | | | | 1R5D47 | CCD-391 | GP336 | 10TS-T36 |
| C30 | 3-30 | | | | | CCD-470 | GP447 | 10TS-Q47 |
| C31 | 15 N750 5% | | N750-SI 15 | TCN-15 | C10Q15U | CCD-151 | GP315 | 10TS-T15 |
| C32 | 3-30 | | | | | 4DP-2-223 | GEM-4122 | 4TM-S22 |
| C33 | 10 N470 5% | | | | | 6DP-2-223 | GEM-6122 | 6TM-S22 |
| C34 | 360 10% | | | D6-391 | L10T36 | | | |
| C35 | 47 10% | | NPO-SI 47 | D6-470 | L10Q47 | | | |
| C36 | 150 10% | | NPO-SI 150 | D6-151 | L10T15 | | | |
| C37 | .022 250V | | P488N-022 | DD-203 | CUB4S22 | | | |
| C38 | .022 500V | | P668N-022 | DD-203 | CUB6S22 | | | |

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C39 | .0047 500V | | P668N-047 | D6-472 | CUB6D47 | 6DP-1-472 | GEM-6247 | |
| C40 | 47 N075 | | | | | * | | |
| C41 | .01 500V | | P668N-01 | D6-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-S10 |
| C42 | .0082 | | | DD-822 | DPMS6D82 | CCD-822 | B-282 | 6PS-D82 |
| C43 | 100 10% | | NPO-SI 100 | D6-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C44 | .047 250V | | P488N-047 | DD-503 | CUB4S47 | 4DP-3-473 | GEM-4147 | 4TM-S47 |
| C45 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C46 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C47 | .0047 | | SI 4700 | D6-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C48 | .0022 | | SI 2200 | D6-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C49 | 47 10% | | NPO-SI 47 | D6-470 | L10Q47 | CCD-470 | GP447 | 10TS-Q47 |
| C50 | .0022 500V | | P668N-0047 | D6-222 | CUB6D22 | 6DP-1-222 | GEM-6222 | 6TM-D22 |
| C51 | .0033 500V | (.0022) † | P668N-0033 | D6-332 | CUB6D33 | 6DP-1-333 | GEM-6233 | 6TM-D33 |
| C52 | .01 250V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C53 | .0033 500V | (.0022) † | P668N-0033 | D6-332 | CUB6D33 | 6DP-1-332 | GEM-6233 | 6TM-D33 |
| C54 | .01 250V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-102 | GEM-411 | 4TM-S10 |
| C55 | .0068 500V | | P668N-0068 | D6-682 | CUB6D68 | 6DP-1-682 | GEM-6268 | 6TM-D68 |
| C56 | .01 250V | (.047) † | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C57 | .01 500V | | P668N-01 | D6-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-S10 |
| C58 | .001 10% | | | DD-102 | 5R5D1 | CCD-102 | GP210 | 10TS-D10 |
| C59 | 330 10% | | | D6-331 | 5R5T33 | CCD-331 | GP330 | 10TS-T33 |
| C60 | 470 10% | | | D6-471 | 5R5T47 | CCD-471 | GP347 | 10TS-T47 |
| C61 | .0022 500V | (.0015) † | P688N-0022 | D6-222 | CUB6D22 | 6DP-1-222 | GEM-6222 | 6TM-D22 |
| C62 | .015 250V | (.01) † | P488N-015 | DD-153 | CUB6S15 | 4DP-1-153 | GEM-4115 | 4TM-S15 |
| C63 | .01 250V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C64 | .022 500V | | P668N-022 | DD-203 | CUB6S22 | 6DP-2-223 | GEM-6122 | 6TM-S22 |
| C65 | 30 N075 5% | | | | | * | | |
| C66 | .0068 500V | | P668N-0068 | D6-682 | CUB6D68 | 6DP-1-682 | GEM-6268 | 6TM-D68 |
| C67 | .01 250V | (.047) † | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C68 | .01 500V | | P668N-01 | D6-103 | CUB6S1 | 6DP-2-103 | GEM-611 | 6TM-S10 |
| C69 | .001 10% | | | DD-102 | 5R5D1 | CCD-102 | GP210 | 10TS-D10 |
| C70 | 330 10% | | | D6-331 | 5R5T33 | CCD-331 | GP333 | 10TS-T33 |
| C71 | 470 10% | | | D6-471 | 5R5T47 | CCD-471 | GP347 | 10TS-T47 |
| C72 | .0022 500V | (.0015) † | P688N-0022 | D6-222 | CUB6D22 | 6DP-1-222 | GEM-6222 | 6TM-D22 |
| C73 | .015 250V | (.01) † | P488N-015 | DD-153 | CUB6S15 | 4DP-1-153 | GEM-4115 | 4TM-S15 |
| C74 | .01 250V | | P488N-01 | D6-103 | CUB4S1 | 4DP-1-103 | GEM-411 | 4TM-S10 |
| C75 | .022 500V | | P668N-022 | DD-203 | CUB6S22 | 6DP-2-223 | GEM-6122 | 6TM-S22 |
| C76 | 30 N075 5% | | | | | * | | |
| C77 | .0082 | | | DD-822 | DPMS6D82 | CCD-822 | B-282 | 6PS-D82 |

† Values used in Models SO150U, SO174B/U, SO190U

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA Grundig Majestic PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1000Ω | | 7801-266 | | | | | Balance |
| B | 2.2meg* | | | | | | | Volume, Right Channel |
| C | 2.2meg* | | | | | | | Volume, Left Channel |
| R2A | 5meg | | 7806-265 | | | | | Bass, Left Channel |
| B | 5meg | | | | | | | Bass, Right Channel |
| R3A | 1meg | | 7806-234 | | | | | Treble, Right Channel |
| B | 1meg | | | | | | | Treble, Left Channel |

* Taps @ 300K & 2meg.

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | REPLACEMENT DATA: WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R4 | 470K | | | |
| R5 | 6800Ω 1W | | | |
| R6 | 1800Ω | | | |
| R7 | 1meg | | | |
| R8 | 15K 1W | | | |
| R9 | 6800Ω | | | |
| R10 | 33K 1W | | | |
| R11 | 10Ω | | | |
| R12 | 1meg | | | |
| R13 | 33K | | | |
| R14 | 120Ω | | | |
| R15 | 33K 1W | | | |
| R16 | 100Ω | | | |
| R17 | 10Ω | | | |
| R18 | 220K | | | |
| R19 | 1000Ω | | | |
| R20 | 56K | | | |
| R21 | 1.8meg | | | |
| R22 | 220K | | | |
| R23 | 180K | | | |
| R24 | 33K | | | |
| R25 | 100K | | | |
| R26 | 4700Ω | | | |
| R27 | 22K | | | |
| R28 | 1meg | | | |
| R29 | 470K | | | |
| R30 | 2.2meg | | | |
| R31 | 220K | | | |
| R32 | 220K | | | |
| R33 | 12K | | | |
| R34 | 2.2meg | | | |
| R35 | 12K | | | |
| R36 | 220K | | | |
| R37 | 220K | | | |
| R38 | 1.8meg | | | |
| R39 | 100K | | | |
| R40 | 1800Ω | | | |

| ITEM No. | RATING | REPLACEMENT DATA: IRC PART No. | REPLACEMENT DATA: WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R41 | 8200Ω | | | |
| R42 | 6800Ω | | | |
| R43 | 330K | | | |
| R44 | 330K | | | |
| R45 | 100K | | | |
| R46 | 330K | | | |
| R47 | 18K | | | |
| R48 | 10meg | | | |
| R49 | 470K | | | |
| R50 | 120Ω | | | |
| R51 | 270Ω | | | |
| R52 | 330Ω | | | |
| R53 | 2700Ω | | | |
| R54 | 47K | | | |
| R55 | 1.8meg | | | |
| R56 | 350Ω | | | |
| R57 | 1.8meg | | | |
| R58 | 100K | | | |
| R59 | 1800Ω | | | |
| R60 | 8200Ω | | | |
| R61 | 6800Ω | | | |
| R62 | 330K | | | |
| R63 | 330K | | | |
| R64 | 100K | | | |
| R65 | 18K | | | |
| R66 | 10meg | | | |
| R67 | 470K | | | |
| R68 | 120Ω | | | |
| R69 | 270Ω | | | |
| R70 | 330Ω | | | |
| R71 | 47K | | | |
| R72 | 1.8meg | | | |
| R73 | 350Ω | | | |
| R74 | 22K | | | |
| R75 | 1300Ω 4W | PW4-1.3K | 4W-SQ-1.3K | |
| R76 | 100K | | | |
| R77 | 2200Ω | | | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA: Grundig Majestic PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1 | FM Ant. Matching | 9238-072 | | | | | ① Wound on 100Ω |
| L2 | FM Ant. | BV1974 | | | | | |
| L3 | RF Choke | BV1975 | | | | | |
| L4 | RF Choke | BV1956 ① | | | | | |
| L5 | FM RF | 9208-025 | | | | | |
| L6 | RF Choke | BV1976 | | | | | |
| L7 | FM Osc. | 9208-024 | | | | | |
| L8 | RF Choke | BV1950 | | | | | |
| L9 | FM Mixer Plate | BV1977 | | | | | |
| L10 | 1st FM IF | 9208-078 | | | | | |
| L11 | SW Ant. | 9232-001 | | | | | |
| L12 | 460KC IF Trap | 9208-057 | | | | | |
| L13 | Loopstick | 9233-072 | BC-419 | 705-A | | T532 | |
| L14 | RF Choke | 9208-001 | | | | | |
| L15 | SW Osc. | 9232-002 | | | | | |
| L16 | BC Osc. | BV1681 | | | | | |
| L17A | 2nd FM IF | 7207-342 | | | | | |
| B | 1st AM IF | | | | | | |
| L18 | Fil. Choke | 9238-026 | | | | | |
| L19 | Line Choke | 9227-004 | | | | | |
| L20 | Line Choke | 9227-005 | | | | | |

## CROSSOVER CHOKE

| ITEM No. | RATINGS: CURRENT (Measured) | RATINGS: DC RES. | RATINGS: INDUCTANCE (0 CURRENT 1000 ∿) | REPLACEMENT DATA: Grundig Majestic PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| L21 | | .3Ω | .7MH | 9030-016 | | | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING: PRI. | RATING: SEC. 1 | RATING: SEC. 2 | REPLACEMENT DATA: Grundig Majestic PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 117V ⓐ .5A | 220V ⓐ .150A AC | 6.3V ⓐ 2.9A | 9084-055 ① | | | | | ① Part #9084-057 used in Models SO150U, SO174B/U, SO190U |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3VCT ⓐ .6A | | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE: PRI. | IMPEDANCE: SEC. 1 | REPLACEMENT DATA: Grundig Majestic PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T2 | 8200Ω | 2-3Ω | 9060-072 | | | | | |
| | | SEC. 2. | | | | | | |
| | | 3-4Ω | | | | | | |
| | | SEC. 1 | | | | | | |
| T3 | 8200Ω | 2-3Ω | 9060-073 | | | | | |
| | | SEC. 2 | | | | | | |
| | | 3-4Ω | | | | | | |

## SPEAKER

| ITEM No. | TYPE: SIZE | TYPE: FIELD | TYPE: V. C. IMP. | REPLACEMENT DATA: Grundig Majestic PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 5" x 7" | PM | 2-3Ω | 0459-000*‡ | 57A15 | * Used in Models SO101/60PX, SO102/60PX |
| SP2 | 7"x 11" | PM | 3-4Ω | 7048-003 * | | ♦ Used in Models SO190U, SO174B/U |
| SP3 | 5"x 7" | PM | 2-3Ω | 0459-000* ♦ | 57A15 | ♦ Used in Model SO150U |
| | Electrostatic | | | 7082-002 ♦‡ | | |
| | 5" | PM | 3-4Ω | 7010-001 ♦ | 5A07 | |
| | | | | 7048-006 ♦‡ | | |

## POWER RECTIFIERS

| ITEM No. | RATING: CURRENT (Measured) | REPLACEMENT DATA: Grundig Majestic PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .080A | B250C75K4 | 1N1763 * | F6* | | * 4 Required. Add 8Ω surge limiter in each transformer secondary lead. |

# PARTS LIST AND DESCRIPTIONS (Continued)

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Grundig Majestic PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M2 | | 7/10A 250V S/B<br><br>3/10A* 250V S/B | | | | | GMA 7/10 | |

* Used when AC input voltage is 220VAC.

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | Grundig Majestic PART No. | | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | SONOTONE PART No. | | |
| | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | CARTRIDGE | NEEDLE* | |
| M3 | | | | | 26S | S1-1 * or S1-3 * | 16T-S | N-8TA-S * | |

## MISCELLANEOUS

| ITEM No. | PART NAME | Grundig Majestic PART No. | NOTES |
|---|---|---|---|
| M4 | FM Tuner | | Complete |
| M5 | Tuning Cap. | 9653-411 | 4 Gang, FM-AM |
| M6 | Detector Ass'y. | 7207-346 | Includes Diodes, Resistors, Caps, & Coils |
| M7 | Switch | | Function Selector (Pushbutton Type) |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

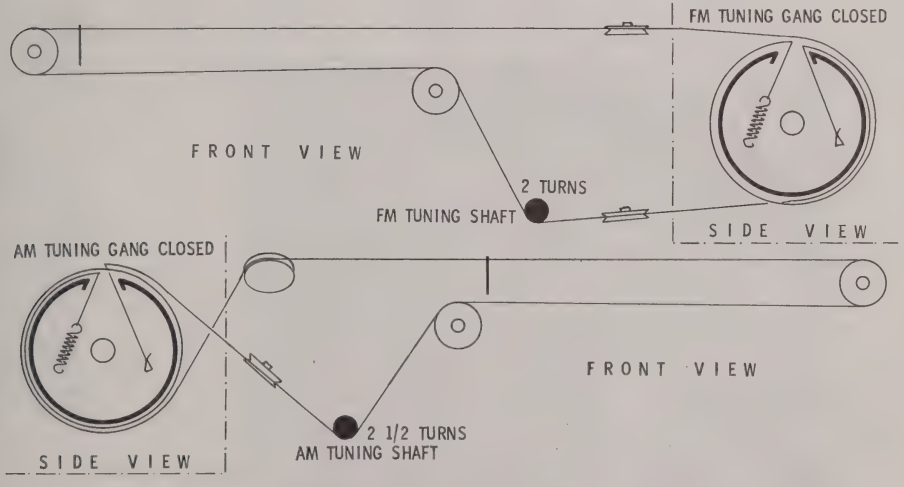
PHOTOFACT® Folder

# HARMAN-KARDON MODEL TA-260 (Stereo Festival II)

HARMAN-KARDON MODEL
TA-260 (Stereo Festival II)

| | | | |
|---|---|---|---|
| TRADE NAME | Harman-Kardon Model TA260 (Stereo Festival II) | | |
| MANUFACTURER | Harman-Kardon, Inc., 520 Main Street, Westbury, L.I., N. Y. | | |
| TYPE SET | AC Operated 20 Tube FM-AM Receiver With Stereo Amplifier | | |
| POWER SUPPLY | 105 - 125 Volts AC, 60 Cycles | RATING | 180 Watts, 1.8 Amp. @117 Volts AC |
| TUNING RANGE—BROADCAST | 530 — 1640KC | FREQ. MOD. | 88 — 108MC |

## DIAL CORD STRINGING



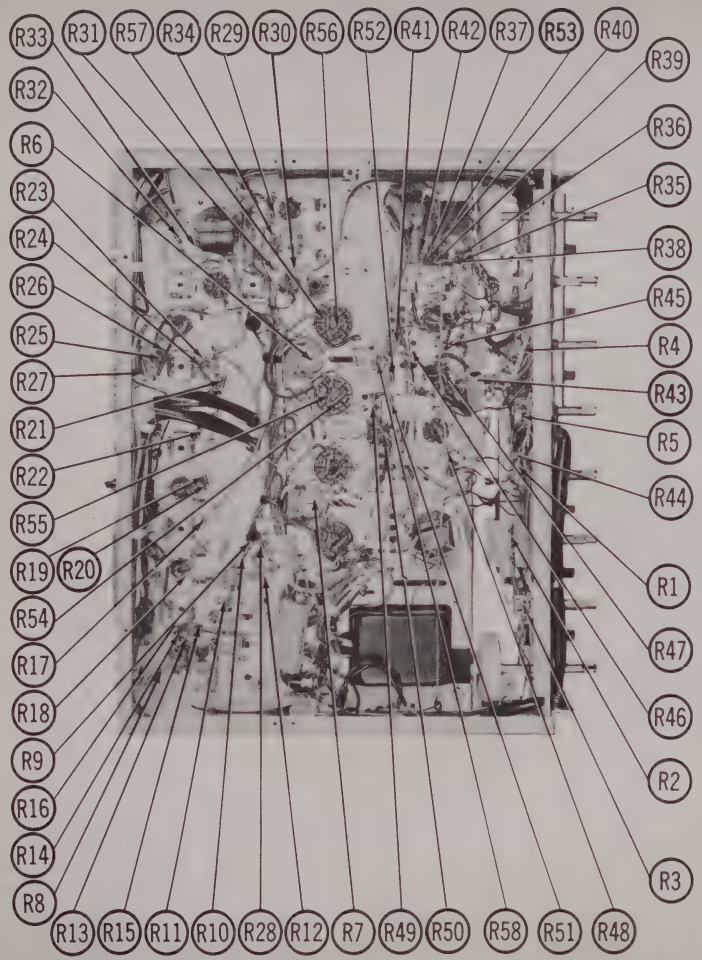

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

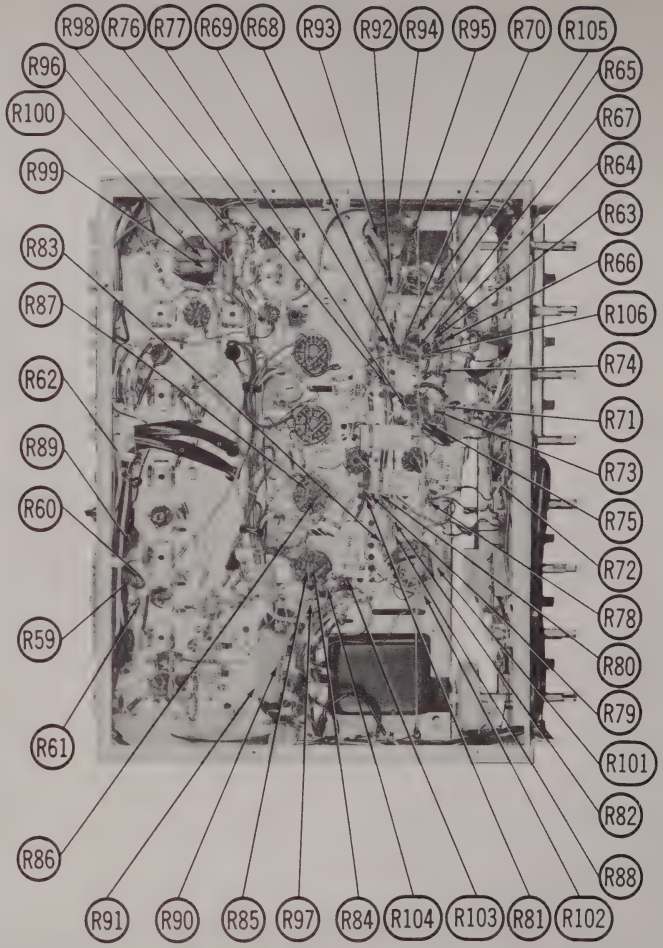
KK654



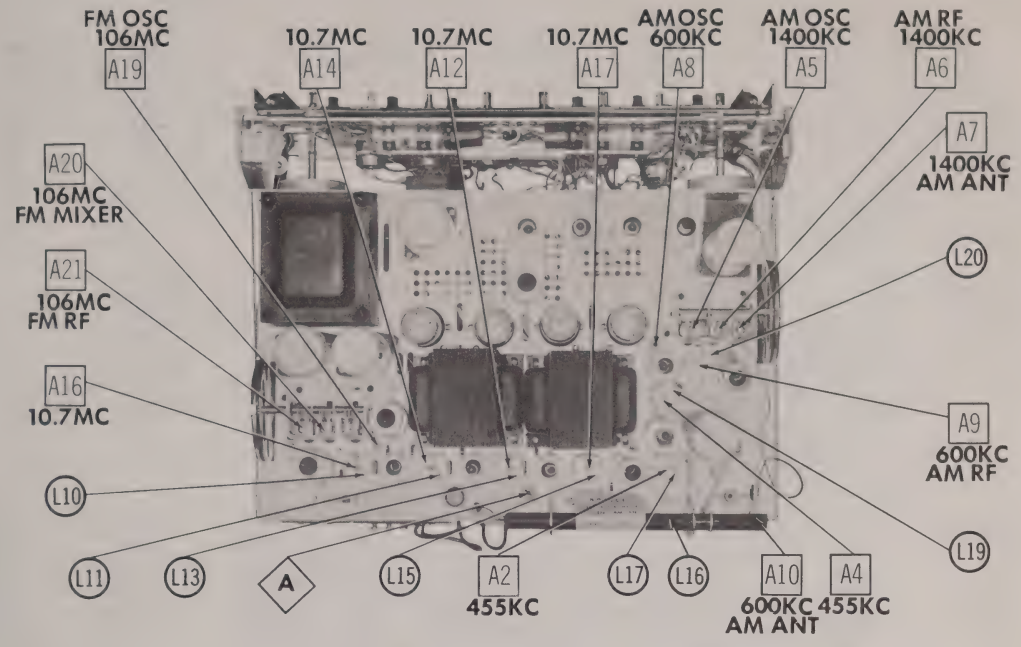
SET 548 FOLDER 7



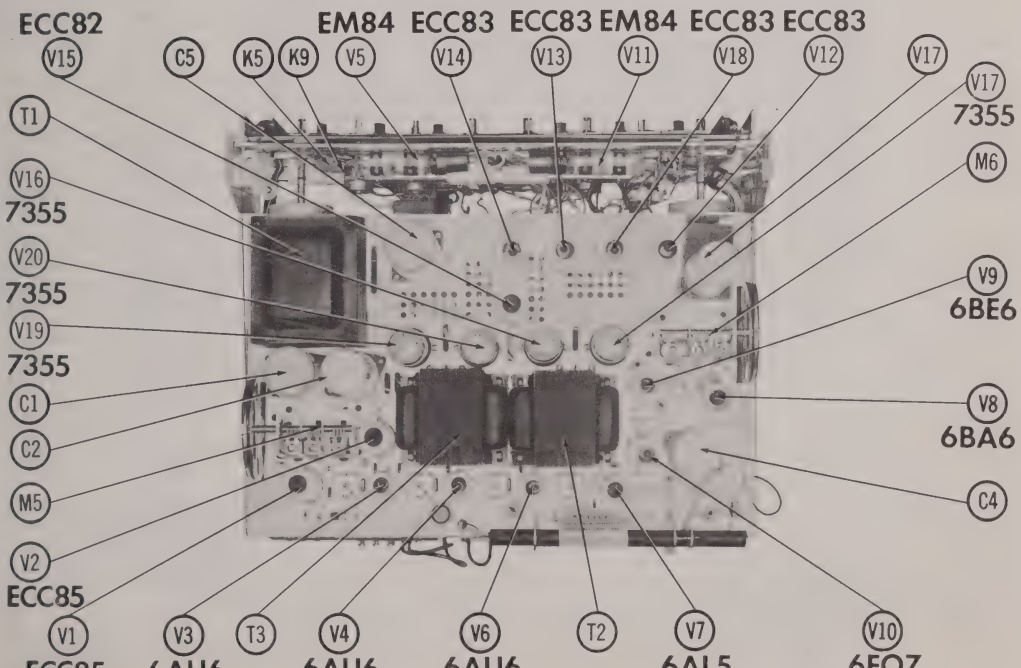

CHASSIS BOTTOM VIEW-RESISTOR IDENT.
(R1 THRU R58)



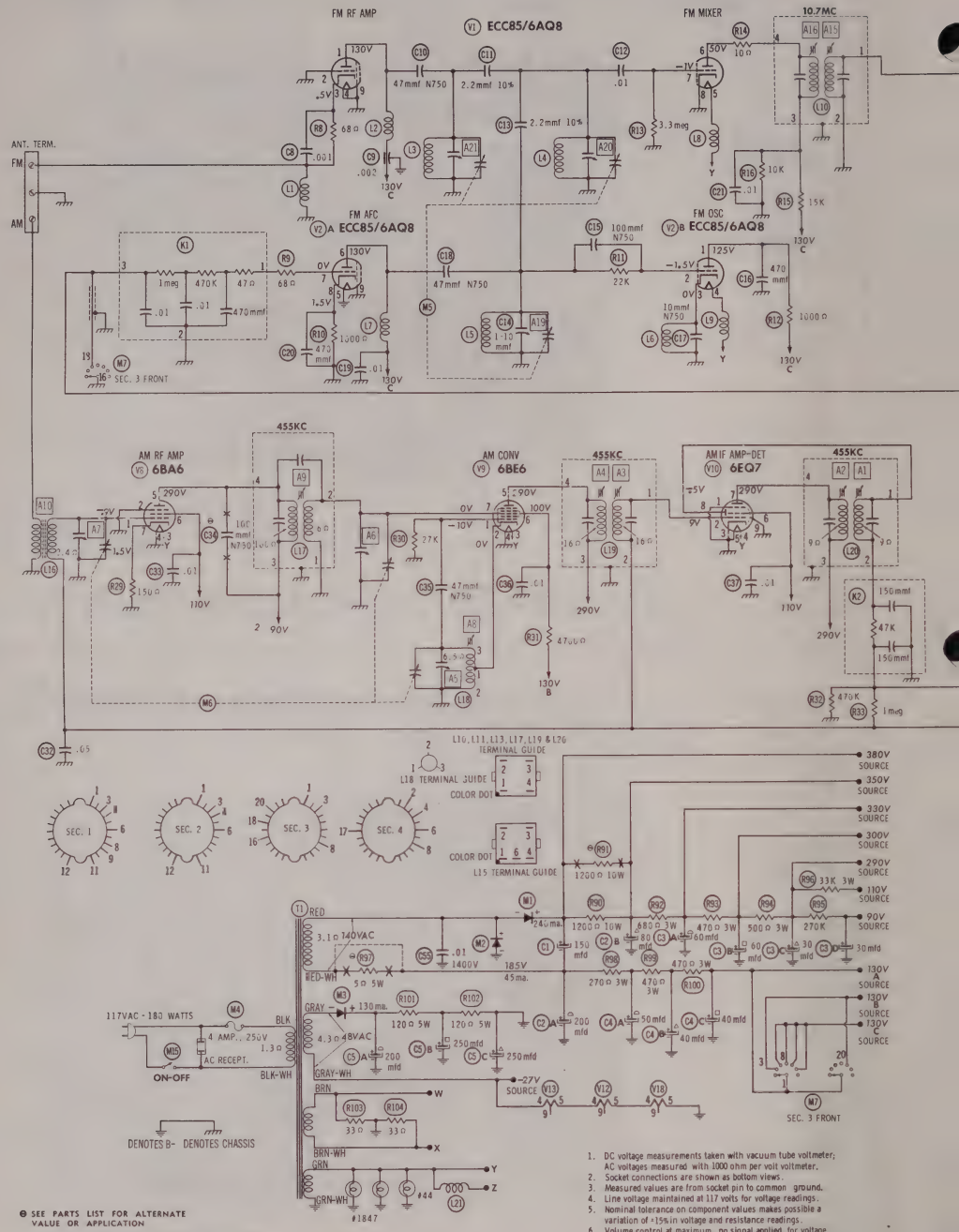

CHASSIS BOTTOM VIEW-RESISTOR IDENT.
(R59 THRU R106)




CHASSIS TOP VIEW-ALIGN. & INDUCTOR IDENT.




CHASSIS - TOP VIEW




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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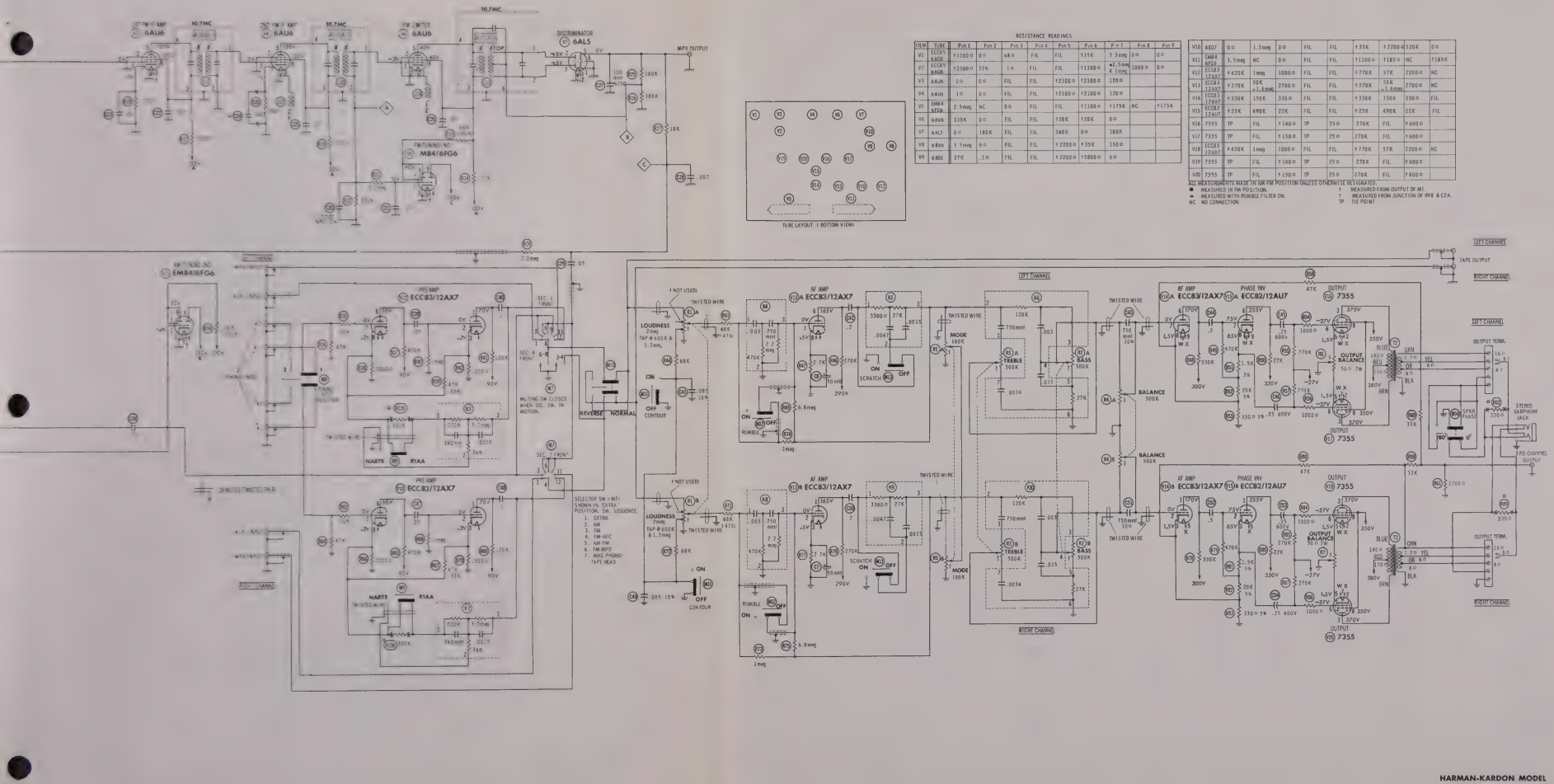



TUBE LAYOUT ( BOTTOM VIEW)

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | ECC85 6AQ8 | †1100Ω | 0Ω | 68Ω | FIL | FIL | †15K | 3.3meg | 0Ω | 0Ω |
| V2 | ECC85 6AQ8 | †2100Ω | 22K | 1Ω | FIL | FIL | †1100Ω | ∞1.5meg 4.1meg | 1000Ω | 0Ω |
| V3 | 6AU6 | 1Ω | 0Ω | FIL | FIL | †2100Ω | †2100Ω | 120Ω | | |
| V4 | 6AU6 | 1Ω | 0Ω | FIL | FIL | †2100Ω | †2100Ω | 120Ω | | |
| V5 | EM84 6FG6 | 2.5meg | NC | 0Ω | FIL | FIL | †1100Ω | †175K | NC | †175K |
| V6 | 6AU8 | 330K | 0Ω | FIL | FIL | †28K | †28K | 0Ω | | |
| V7 | 6AL5 | 0Ω | 180K | FIL | FIL | 360K | 0Ω | 180K | | |
| V8 | 6BA6 | 1.5meg | 0Ω | FIL | FIL | †2200Ω | †35K | 150Ω | | |
| V9 | 6BE6 | 27K | 1Ω | FIL | FIL | †2200Ω | †5800Ω | 6Ω | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| V10 | 6GD7 | 0Ω | 1.5meg | 0Ω | FIL | FIL | †35K | †2200Ω | 520K | 0Ω |
| V11 | EM84 6FG6 | 1.5meg | NC | 0Ω | FIL | FIL | †1100Ω | †185Ω | NC | †185K |
| V12 | ECC83 12AX7 | †420K | 1meg | 1000Ω | FIL | FIL | †770K | 57K | 2200Ω | NC |
| V13 | ECC83 12AX7 | †270K | 50K ∞1.6meg | 2700Ω | FIL | FIL | †270K | 50K ∞1.6meg | 2700Ω | NC |
| V14 | ECC83 12AX7 | †330K | 150K | 330Ω | FIL | FIL | †330K | 150K | 330Ω | FIL |
| V15 | ECC83 12AU7 | †23K | 490K | 22K | FIL | FIL | †23K | 490K | 22K | FIL |
| V16 | 7355 | TP | FIL | †140Ω | TP | 25Ω | 270K | FIL | †600Ω | |
| V17 | 7355 | TP | FIL | †150Ω | TP | 25Ω | 270K | FIL | †600Ω | |
| V18 | ECC83 12AX7 | †420K | 1meg | 1000Ω | FIL | FIL | †770K | 57K | 2200Ω | NC |
| V19 | 7355 | TP | FIL | †140Ω | TP | 25Ω | 270K | FIL | †600Ω | |
| V20 | 7355 | TP | FIL | †150Ω | TP | 25Ω | 270K | FIL | †600Ω | |

ALL MEASUREMENTS MADE IN AM-FM POSITION UNLESS OTHERWISE DESIGNATED.
■ MEASURED IN FM POSITION.
▬ MEASURED WITH RUMBLE FILTER ON.
NC NO CONNECTION
† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM JUNCTION OF R98 & C7A.
TP TIE POINT

**HARMAN-KARDON MODEL TA-260 (Stereo Festival II)**

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loudness control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A4, A9, A11 thru A18.. GENERAL CEMENT #5097, 8727
WALSCO #2515

A5, A6, A7, A19, A20, A21..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

A8..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT — SELECTOR IN AM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| . | High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis. | 455KC (400~ 30% AM) | (AM) Tuning gang fully open. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | High side thru 470Ω to AM antenna terminal. Low side to chassis. | 1400KC | 1400KC | " | A5, A6, A7 | " |
| 3. | " | 600KC | 600KC | " | A8, A9, A10 | Adjust for maximum output. A10 is adjusted by sliding ring along loopstick. (Recement A10). |

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 4. | High side thru .01mfd to pin 7 (grid) of FM Mixer. Low side to chassis. | 10.7MC (Unmod.) | (FM) Point of non-interference. | DC probe to point Ⓐ. Common to chassis. | A11, A12, A13, A14, A15, A16 | Adjust for maximum deflection. |
| 5. | " | " | " | DC probe thru 1meg to point Ⓑ. Common to chassis. | A17 | " |
| 6. | " | " | " | DC probe to point Ⓒ. Common to chassis. | A18 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 4. | High side thru .01mfd to pin 7 (grid) of FM Mixer. Low side to chassis. | 10.7MC (450KC Swp) | (FM) Point of non-interference. | Vert. amp. to point Ⓐ. Low side to chassis. | A11, A12, A13, A14, A15, A16 | Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. |
| 5. | " | " | " | Vert. amp. thru 47K to point Ⓑ. Low side to chassis. | A17 | " |
| 6. | " | " | " | Vert. amp. to point Ⓒ. Low side to chassis. | A18 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A17 for maximum amplitude and straightness of cross-over lines. |

FM RF ALIGNMENT — SELECTOR IN FM POSITION

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 7. | Across FM antenna terminals with 150Ω in each lead. | 106MC (Unmod.) | (FM) 106MC | DC probe to point Ⓐ. Common to chassis. | A19, A20, A21 | Adjust for maximum deflection. |
| 8. | " | 90MC | 90MC | " | L5, L4, L3 | Adjust for maximum deflection by expanding or compressing coil turns. |

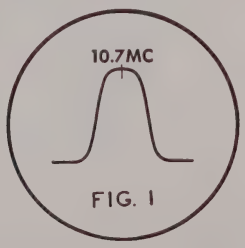


FIG. 1

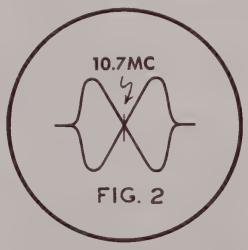
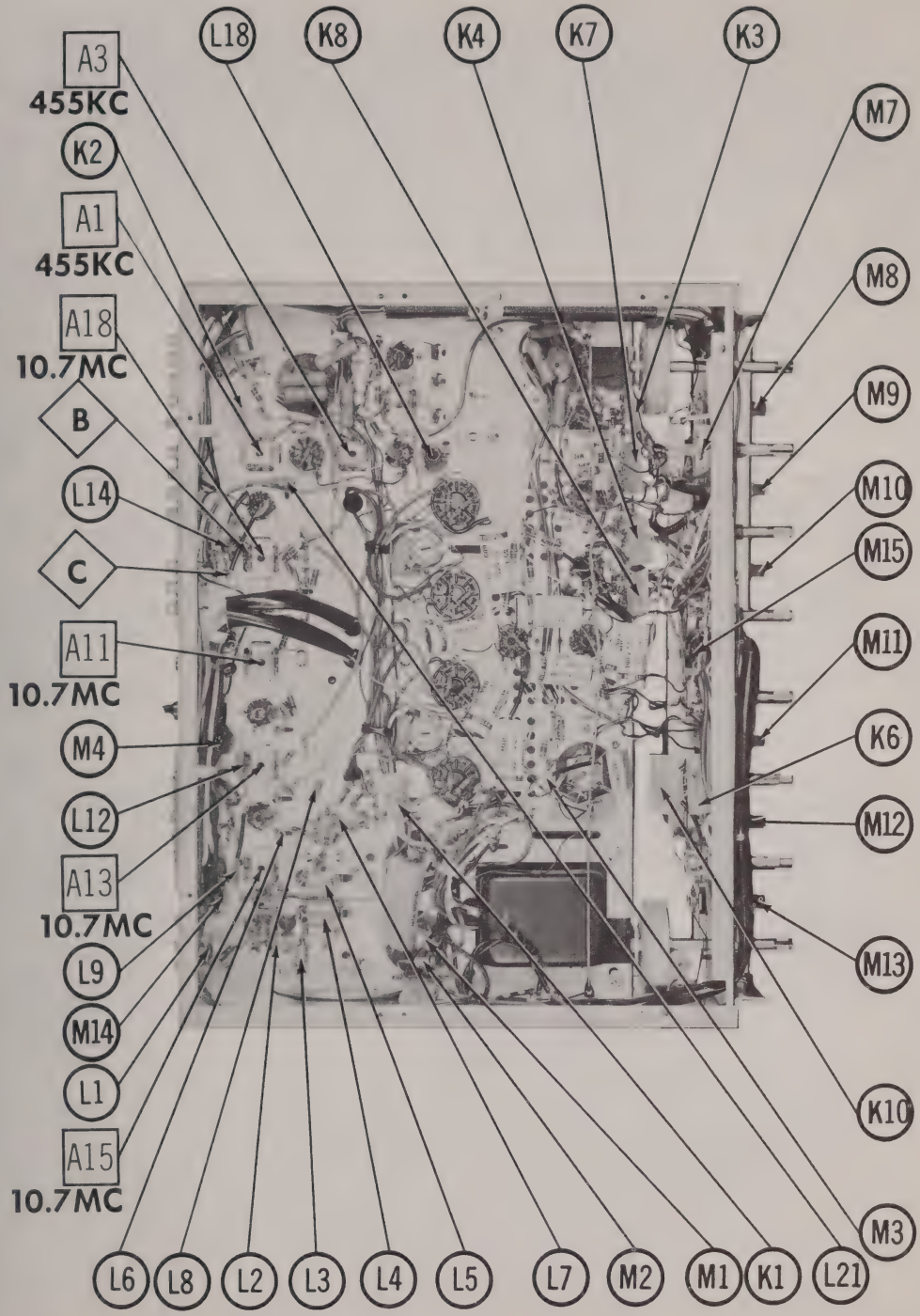


FIG. 2




CHASSIS BOTTOM VIEW-ALIGN., INDUCTOR & MISC. IDENT.

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA) |
|---|---|---|
| V1 | FM RF Amp. -FM Mixer | ECC85/6AQ8 |
| V2 | FM Osc. -FM AFC | ECC85/6AQ8 |
| V3 | 1st FM IF Amplifier | 6AU6 |
| V4 | 2nd FM IF Amplifier | 6AU6 |
| V5 | FM Tuning Indicator | EM84/6FG6 |
| V6 | FM Limiter | 6AU6 |
| V7 | Discriminator | 6AL5 |
| V8 | AM RF Amplifier | 6BA6 |
| V9 | AM Converter | 6BE6 |
| V10 | AM IF Amp. -AM Det. | 6EQ7 |
| V11 | AM Tuning Indicator | EM84/6FG6 |
| V12 | Left Channel Preamp. | ECC83/12AX7 |
| V13 | Left Channel AF Amp. - Right Channel AF Amp. | ECC83/12AX7 |
| V14 | Left Channel AF Amp. - Right Channel AF Amp. | ECC83/12AX7 |
| V15 | Left Channel Phase Inv. - Right Channel Phase Inv. | ECC82/12AU7 |
| V16 | Left Channel Output | 7355 |
| V17 | Left Channel Output | 7355 |
| V18 | Right Channel Preamp. | ECC83/12AX7 |
| V19 | Right Channel Output | 7355 |
| V20 | Right Channel Output | 7355 |

## ELECTROLYTIC CAPACITORS

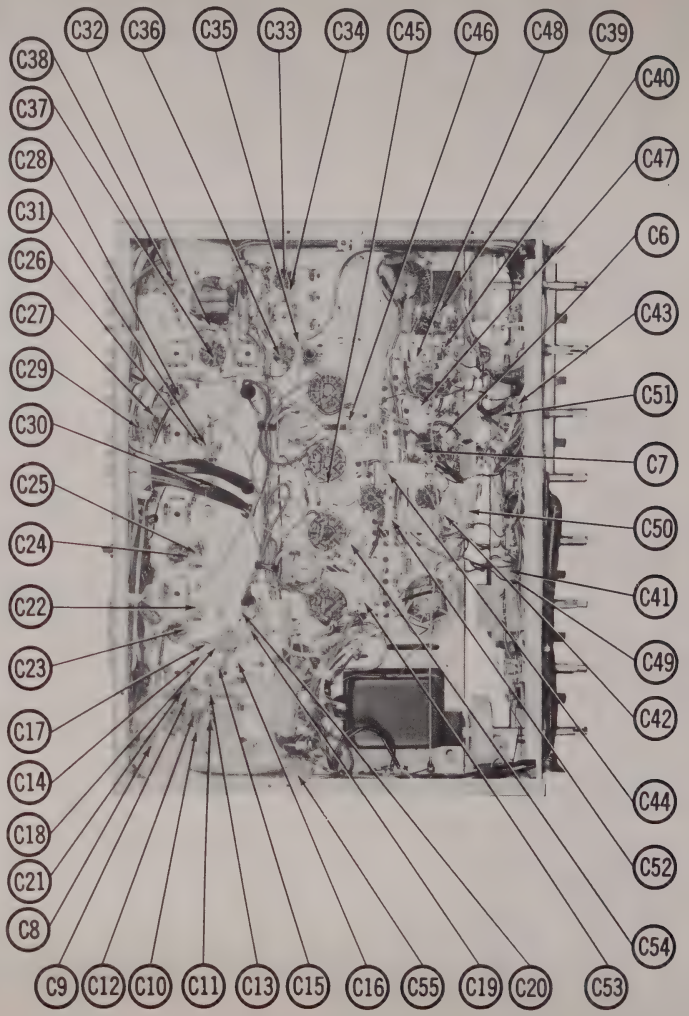
| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA Harman-Kardon PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1 | 150 | 200 | JE3584176 | AFH1-31-75 | XA0266 | FP140.6 | TMS-1480 | TVL-1540 | |
| C2A | ▲200 | 200 | JE3584177 | AFH3-114-80 | XA0318 | WP132 | TMS-1490 | TVL-1547 | |
| B | ▲80 | 350 | | | BR8035 | TC80 | TD-80-350 | TVA-1716 | |
| C3A | ▲60 | 350 | JE3584178 | | C0232 | FP333.7 | TMT-3489 | TVL-3791 | |
| B | ■60 | 350 | | | BR6035 | TC795 | TD-60-350 | TVA-1613 | |
| C | ▲30 | 300 | | | | | | | |
| D | 30 | 300 | | | | | | | |
| C4A | ▲50 | 200 | JE2502988 | AFH3-25-50 | C0194 | FP327.89 | TMT-3304 | TVL-3583 | |
| B | ▲40 | 200 | | | | | | | |
| C | ■40 | 200 | | | | | | | |
| C5A | ▲200 | 100 | JE3584179 | | XB0189 | | TMD-2185 | TVLS-3402* | |
| B | ■250 | 50 | | | BR2505 | | TD-250-50 | | |
| C | ▲250 | 50 | | | | | | | |
| C6 | 50 | 6 | JE3584255 | PTT29 | NLW50-6 | TT6X50 | MLV50-6 | TE-1100 | |
| C7 | 50 | 6 | JE3584255 | PTT29 | NLW50-6 | TT6X50 | MLV50-6 | TE-1100 | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C8 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C9 | .002 | | EF-001 | MFT-1000 | | CCF-102 | CT280A | |
| C10 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C11 | 2.2 10% | | NPO-SI 2.2 | TCZ-2R2 | C10V22C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C12 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C13 | 2.2 10% | | NPO-SI 2.2 | TCZ-2R2 | C10V22C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C14 | 1-10 | #JV20688 | | 829-10 | | | | |
| C15 | 100 N750 | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C16 | 470 | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C17 | 10 N750 | | N750-DI 10 | DTN-10 | C10Q1U | CCTN-100 | CN7-410 | 10TCU-Q10 |
| C18 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C19 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C20 | 470 | | DI-470 | DD-471 | BYA10T47 | CCD-471 | B-347 | 10TS-T47 |
| C21 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C22 | .002 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C23 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C24 | .002 | Note 1 | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C25 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C26 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C27 | 100 N750 | | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C28 | .002 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C29 | .05 200V | | P288N-05 | DD-503 | CUB2S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C30 | 15 NPO 10% | | NPO-DI 15 | DTZ-15 | C10Q15C | CCTO-150 | CNO-415 | 10TCC-Q15 |
| C31 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C32 | .05 200V | | P288N-05 | DD-503 | CUB2S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C33 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

# CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



# PARTS LIST AND DESCRIPTIONS (Continued)

## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C34 | 100 N750 | Note 1 | N750-DI 100 | DTN-100 | C10T1U | CCTN-101 | CN7-310 | 10TCU-T10 |
| C35 | 47 N750 | | N750-DI 47 | DTN-47 | C10Q47U | CCTN-470 | CN7-447 | 10TCU-Q47 |
| C36 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C37 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C38 | .05 200V | | P288N-05 | DD-503 | CUB2S5 | 4DP-3-503 | GEM-415 | 2TM-S50 |
| C39 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C40 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-3-104 | GEM-401 | 4TM-P10 |
| C41 | .005 10% | | DI-5000 | | PM6D5 | CCD-502 | JL-250 | 10TS-D50 |
| C42 | .2 400V | | P488N-2 | | CUB4P22 | 4DP-5-204 | GEM-402 | 4TM-P20 |
| C43 | 750 10% | | DI-750 | DD-751 | 5R5T75 | CCD-751 | GP375 | 10TS-T75 |
| C44 | .5 400V | | P488N-5 | | CUB4P5 | 4DP-6-504 | GEM-405 | 4TM-P50 |
| C45 | .25 600V | | P688N-25 | | CUB6D25 | 6DP-5-254 | GEM-6025 | 6TM-P25 |
| C46 | .25 600V | | P688N-25 | | CUB6P25 | 6DP-5-254 | GEM-6025 | 6TM-P25 |
| C47 | .05 400V | | P488N-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |
| C48 | .1 400V | | P488N-1 | DF-104 | CUB4P1 | 4DP-4-104 | GEM-401 | 4TM-P10 |
| C49 | .005 10% | | DI-5000 | | PM6D5 | CCD-502 | JL-250 | 10TS-D50 |
| C50 | .2 400V | | P488N-2 | | CUB4P22 | 4DP-5-204 | GEM-402 | 4TM-P20 |
| C51 | 750 10% | | DI-750 | DD-751 | 5R5T75 | CCD-751 | GP375 | 10TS-T75 |
| C52 | .5 400V | | P488N-5 | | CUB4P5 | 4DP-6-504 | GEM-405 | 4TM-P50 |
| C53 | .25 600V | | P688N-25 | | CUB6P25 | 6DP-5-254 | GEM-6025 | 6TM-P25 |
| C54 | .25 600V | | P688N-25 | | CUB6P25 | 6DP-5-254 | GEM-6025 | 6TM-P25 |
| C55 | .01 1400V | | DAC-27 | DDI6-103 | HVE16S1 | 16DP-3-103 | UAC-110 | BL-S10 |

# Harman-Kardon Part Number.
Note 1. Not used in some versions.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | Harman-Kardon PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1A | 2meg* | | RV3584202 | BT-175 | | | | Loudness, Left Channel |
| B | 2meg* | | | STR-175 | | | | Loudness, Right Channel |
| R2A | 500K | | RV2783209 | F1-41 | | | | Bass, Left Channel |
| B | 500K | | | R2-41 | | | | Bass, Right Channel |
| C | Spring | | | AK-32 | | | | Friction Drive |
| R3A | 500K | | RV2783209 | F1-41 | | | | Treble, Left Channel |
| B | 500K | | | R2-41 | | | | Treble, Right Channel |
| C | Spring | | | AK-32 | | | | Friction Drive |
| R4A | 500K | | RV3584181 | B-59 | AD47-500K-S | | FA55L | Balance, Left Channel |
| B | 500K | | | SR-59 | Not Req. | | RU55L | Balance, Right Channel |
| C | Shaft | | | Not Req. | KSS-3 | | CS3500 | |
| R5A | 100K | | RV3584203 | B-40 | AD47-100K-S | | FA15L | Mode, Left Channel |
| B | 100K | | | SR-40 | Not Req. | | RU15L | Mode, Right Channel |
| C | Shaft | | | Not Req. | KSS-3 | | CS3500 | |
| R6 | 50Ω | 2(WW) | RV3584208 | | | | | Output Balance, Left Channel |
| R7 | 50Ω | 2(WW) | RV3584208 | | | | | Output Balance, Right Channel |

* Taps @ 600K & 1.2meg. 1.2meg Tap not used.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R8 | 68Ω | | | | R22 | 330K | | | |
| R9 | 68Ω | | | | R23 | 68K | | | (150K) * |
| R10 | 1000Ω | | | | R24 | 27K | | | |
| R11 | 22K | | | | R25 | 180K | | | |
| R12 | 1000Ω | | | | R26 | 180K | | | |
| R13 | 3.3meg | | | | R27 | 18K | | | |
| R14 | 10Ω | | | | R28 | 2.2meg | | | |
| R15 | 15K | | | | R29 | 150Ω | | | |
| R16 | 10K | | | | R30 | 27K | | | |
| R17 | 1000Ω | | | | R31 | 4700Ω | | | |
| R18 | 120Ω | | | | R32 | 470K | | | |
| R19 | 1000Ω | | | | R33 | 1meg | | | |
| R20 | 120Ω | | | | R34 | 150K | | | (330K) * |
| R21 | 2.2meg | | | | R35 | 10K | | | |

## RESISTORS (cont)

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R36 | 47K | | | | R72 | 68K | | | |
| R37 | 470K | | | | R73 | 1meg | | | |
| R38 | 2200Ω | | | | R74 | 1meg | | | |
| R39 | 47K | | | (33K) * | R75 | 6.8meg | | | |
| R40 | 1meg | | | | R76 | 270K | | | |
| R41 | 120K | | | | R77 | 2700Ω | | | |
| R42 | 1000Ω | | | | R78 | 330K | | | |
| R43 | 68K | | | (470K) * | R79 | 470K | | | |
| R44 | 68K | | | | R80 | 22K | | | |
| R45 | 6.8meg | | | | R81 | 1500Ω 5% | | | |
| R46 | 270K | | | | R82 | 20K 5% | | | |
| R47 | 2700Ω | | | | R83 | 330Ω 5% | | | |
| R48 | 330K | | | | R84 | 1000Ω | | | |
| R49 | 470K | | | | R85 | 270K | | | |
| R50 | 22K | | | | R86 | 1000Ω | | | |
| R51 | 1500Ω 5% | | | | R87 | 270K | | | |
| R52 | 20K 5% | | | | R88 | 47K | | | |
| R53 | 330Ω 5% | | | | R89 | 330Ω | | | Note 1 |
| R54 | 1000Ω | | | | R90 | 1200Ω 10W | PW10-1200 | 10W-SQ-1200 | |
| R55 | 270K | | | | R91 | 1200Ω 10W | PW10-1200 | 10W-SQ-1200 | Note 1 |
| R56 | 1000Ω | | | | R92 | 680Ω 3W | PW3-680 | 3G-680 | |
| R57 | 270K | | | | R93 | 470Ω 3W | PW3-470 | 3G-470 | |
| R58 | 47K | | | | R94 | 500Ω 3W | PW3-500 | 3G-500 | |
| R59 | 33K | | | | R95 | 270K | | | (150K) * |
| R60 | 33K | | | | R96 | 33K 3W | PW3-33K | 3G-33K | |
| R61 | 2200Ω | | | | R97 | 5Ω 5W | PW5-5 | 5W-SQ-5 | Note 1 |
| R62 | 330Ω | | | Note 1 | R98 | 270Ω 3W | PW3-270 | 3G-270 | |
| R63 | 10K | | | | R99 | 470Ω 3W | PW3-470 | 3G-470 | |
| R64 | 47K | | | | R100 | 470Ω 3W | PW3-470 | 3G-470 | |
| R65 | 470K | | | | R101 | 120Ω 5W | PW5-120 | 5W-SQ-120 | |
| R66 | 2200Ω | | | | R102 | 120Ω 5W | PW5-120 | 5W-SQ-120 | |
| R67 | 47K | | | (33K) * | R103 | 33Ω | | | |
| R68 | 1meg | | | | R104 | 33Ω | | | |
| R69 | 120K | | | | R105 | 330K | | | Note 1 |
| R70 | 1000Ω | | | | R106 | 330K | | | Note 1 |
| R71 | 68K | | | (47K) * | | | | | |

Note 1. Not used in some versions.
* Alternate Value.

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | Harman-Kardon PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | FM AFC Comp. | 470mmf, .01mfd, .01mfd, 47Ω, 470K, 1meg | PCCOM3080 | |
| K2 | AM RF Diode | 150mmf, 150mmf, 47K | PC781599 | Aerovox PA-98<br>Centralab PC-51<br>Sprague D-2 |
| K3 | Equalization Sw. Comp. | 360mmf, .0015mfd, 36K, 220K, 4.7meg | PCCOM4151 | |
| K4 | Rumble Filter | 750mmf, .003mfd, 470K, 2.2meg | PC3584185 | |
| K5 | Scratch Filter | .0015mfd, .0047mfd, 3300Ω, 27K | PC3584184 | |
| K6 | Tone Comp. | 750mmf, .003mfd, .0034mfd, .015mfd, 27K, 120K | PC2492902 | |
| K7 | Equalization Sw. Comp. | 360mmf, .0015mfd, 36K, 220K, 4.7meg | PCCOM4151 | |
| K8 | Rumble Filter | 750mmf, .003mfd, 470K, 2.2meg | PC3584185 | |
| K9 | Scratch Filter | .0015mfd, .0047mfd, 3300Ω, 27K | PC3584184 | |
| K10 | Tone Comp. | 750mmf, .003mfd, .0034mfd, .015mfd, 27K, 120K | PC2492902 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | Harman-Kardon PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1 | RF Choke(.24uh) | GC2883I | | 4584 | RTC-8512 | T957 | |
| L2 | RF Choke(3.3uh) | GC3584423 | BC-564 | 4608 | RTC-8518 | T858 | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF) (cont)

| ITEM No. | USE | REPLACEMENT DATA Harman-Kardon PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L3 | FM RF | GL2783391 | | | | | |
| L4 | FM Mixer Grid | GL2783350 | | | | | |
| L5 | FM Osc. | GL2783349 | | | | | |
| L6 | RF Choke(1uh) | GC2503069 | BC-561 | 4602 | RTC-8515 | T855 | |
| L7 | RF Choke(3.3uh) | GC3584423 | BC-564 | 4608 | RTC-8518 | T858 | |
| L8 | Fil. Choke(3.3uh) | GC3584423 | BC-564 | 4608 | RTC-8518 | T858 | |
| L9 | Fil. Choke(3.3uh) | GC3584423 | BC-564 | 4608 | RTC-8518 | T858 | |
| L10 | 1st FM IF | GT2783362 | FM-254 | 1463 | RTC-8599 | T633 | |
| L11 | 2nd FM IF | GT2783363 | FM-254 | 1463 | RTC-8599 | T633 | |
| L12 | Fil. Choke(3.3uh) | GC3584423 | BC-564 | 4608 | RTC-8518 | T858 | |
| L13 | 3rd FM IF | GT2783362 | FM-254 | 1463 | RTC-8599 | T633 | |
| L14 | Fil. Choke(3.3uh) | GC3584423 | BC-564 | 4608 | RTC-8518 | T858 | |
| L15 | Discriminator | GT2503052 | FM-253 | 1464 | RTC-8665 | T634 | |
| L16 | Loopstick | GL2783330 | BC-419 | 705-A | | T532 | |
| L17 | AM RF | GT2493012 | | | | | |
| L18 | AM Osc. | GLCOM3011 | BC-393 | 70-OSC | RTC-8647 | T512 | |
| L19 | 1st AM IF | GT2493013 | BC-352 | 12-C1 | RTC-8632 | T607 | |
| L20 | 2nd AM IF | GT2493014 | BC-353 | 12-C2 | RTC-8633 | T608 | |
| L21 | Fil. Choke (3.3uh) | GC3584423 | BC-564 | 4608 | RTC-8518 | T858 | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | SEC. 1 | SEC. 2 | REPLACEMENT DATA Harman-Kardon PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 117V@ 1.8A | 140V@ .850A AC | 6.3V@ 4.4A | FT3584174 | | | | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3V@ 3.8A | 48V@ .130A DC | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | SEC. | REPLACEMENT DATA Harman-Kardon PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T2 | 4000Ω CT | 16Ω Tap@ 8Ω, 4Ω | FT3584175 | A-3129① | A-3851① | 24S77① | | ① Drill New Mounting Hole(s). Tape 10% Feedback Winding. |
| T3 | 4000Ω CT | 16Ω Tap@ 8Ω, 4Ω | FT3584175 | A-3129① | A-3851① | 24S77① | | |

## POWER RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA Harman-Kardon PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .240A | Z3584396 | 1N1763 | 40H | SR500 | |
| M2 | .240A | Z3584396 | 1N1763 | 40H | SR500 | |
| M3 | .130A | Z3584324 | 1N1763 | 40H | SR500 | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA Harman-Kardon PART No. FUSE | HOLDER | LITTELFUSE PART No. FUSE | HOLDER | BUSS PART No. FUSE | HOLDER |
|---|---|---|---|---|---|---|---|---|
| M4 | 3AG | 4A 250V | ZCOM3299 | HC33901 | 312004 (3AG 4A 250V) | 342001 | MTH4 | HKP |

## MISCELLANEOUS

| ITEM No. | PART NAME | Harman-Kardon PART No. | NOTES |
|---|---|---|---|
| M5 | Tuning Cap. | JV2783184 | FM, 3 Gang |
| M6 | Tuning Cap. | JV2783183 | AM, 3 Gang (Ant. 11-262mmf, RF 30-395mmf, Osc. 17-105mmf) |
| M7 | Switch | ER2783175 | Function Selector (Rotary Type) |
| M8 | Switch | ESOM4020 | Phono Input Selector (DPDT Slide Type) |
| M9 | Switch | ESOM4020 | Equalization (DPDT Slide Type) |
| M10 | Switch | ESOM4020 | Stereo (Normal-Reverse) (DPDT Slide Type) |
| M11 | Switch | ESOM4020 | Contour (DPDT Slide Type) |
| M12 | Switch | ESOM4020 | Rumble Filter (DPDT Slide Type) |
| M13 | Switch | ESOM4020 | Scratch Filter (DPDT Slide Type) |
| M14 | Switch | ESOM2727 | Speaker Phase (DPDT Slide Type) |
| M15 | Switch | EP2783208 | Power Off-On (Pushbutton Type) |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Dial Glass | P3584346 | |
| Dial Pointer | P3584356 | FM |
| Dial Pointer | P3584357 | AM |
| Knob | PCOM4353 | Tuning, Loudness, Mode, Balance |
| Knob | PCOM4352 | Function Selector |
| Knob | PCOM4350 | Bass, Treble (Rear) |
| Knob | PCOM4351 | Bass, Treble (Front) |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

# KNIGHT MODEL KN-775 (35DU773)

KNIGHT MODEL
KN-775 (35DU773)

KNIGHT MODEL
KN-775 (35DU773)

| | |
|---|---|
| TRADE NAME | Knight Model KN-775 (35DU773) |
| SUPPLIER | Allied Radio Corp., 100 N. Western Ave., Chicago 80, Illinois |
| TYPE SET | AC Operated 10 Tube Stereo Amplifier |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles RATING 155 Watts, 1.6 Amp. @117 Volts AC |

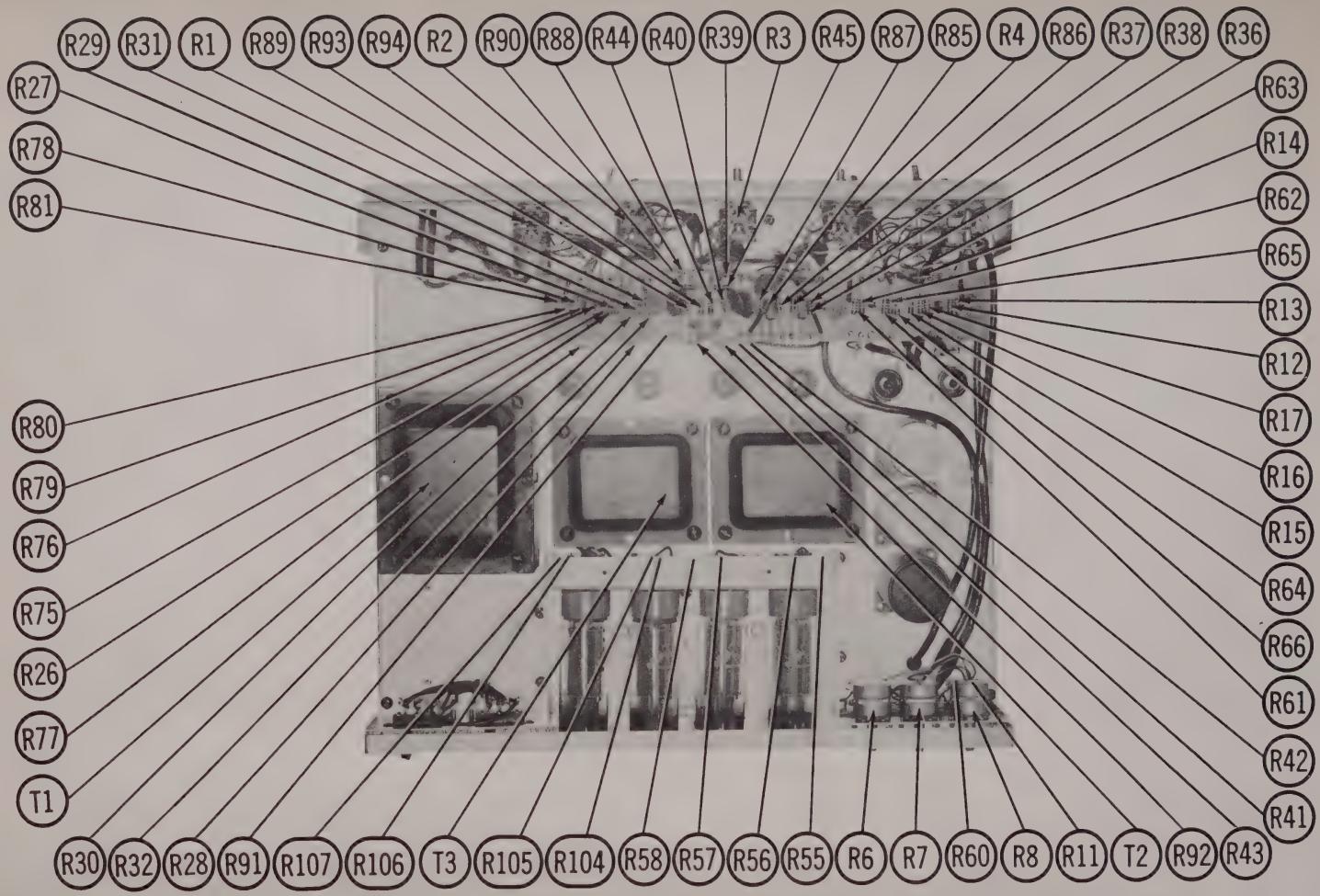
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

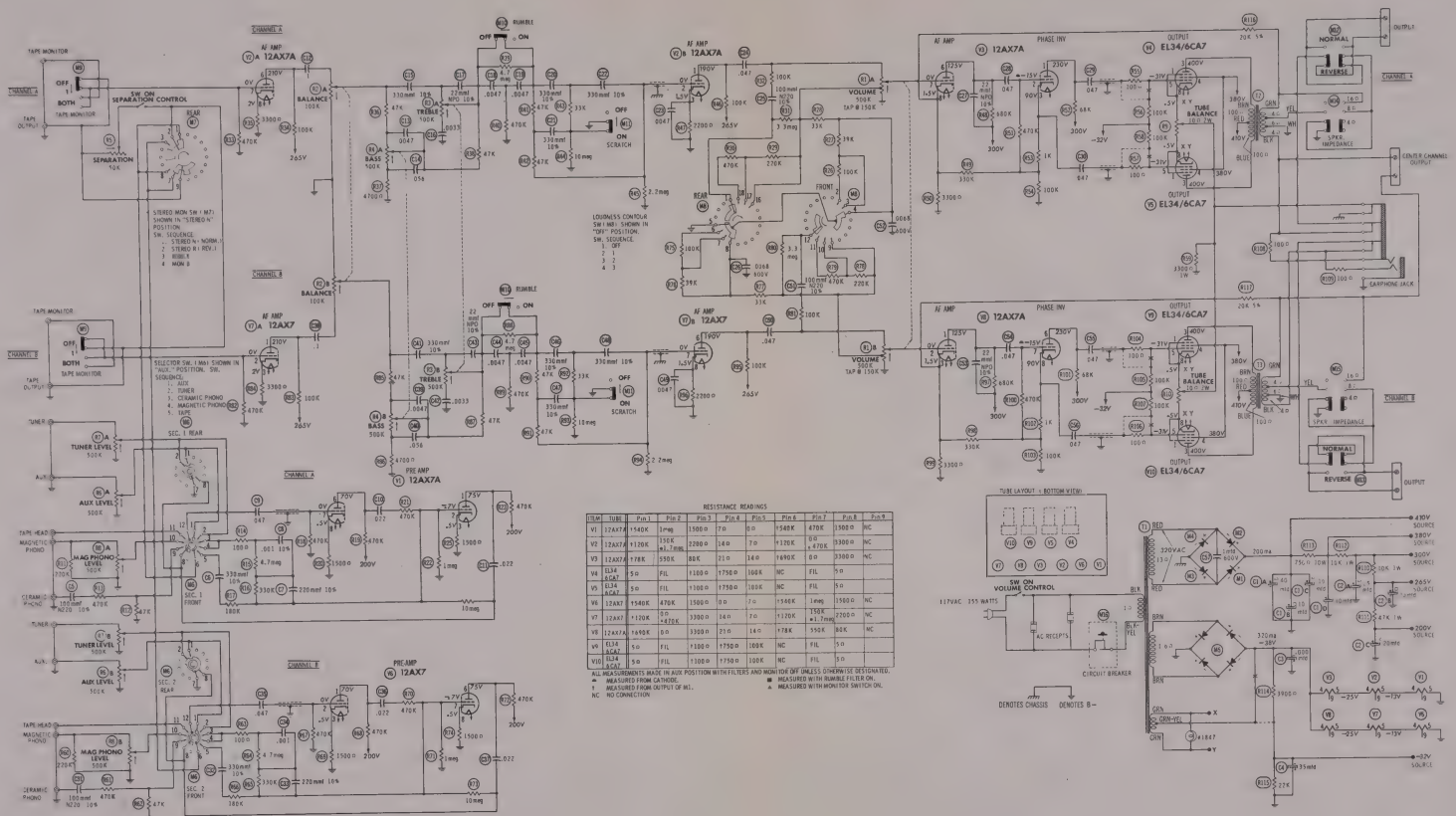
KV711

DATE 9—61 SET 548 FOLDER 8

SET 548 FOLDER 8




CHASSIS TOP VIEW-RESISTOR & TRANSFORMER IDENT.




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7A | 1540K | 1meg | 1500Ω | 2Ω | 0Ω | 1548K | 470K | 1500Ω | NC |
| V2 | 12AX7A | 120K | 150K ø1.7meg | 2200Ω | 14Ω | 7Ω | 120K | 0Ω ø 470K | 3300Ω | NC |
| V3 | 12AX7A | 78K | 550K | 88K | 21Ω | 14Ω | 690K | 0Ω | 3300Ω | NC |
| V4 | EL34 6CA7 | 5Ω | FIL | 1100Ω | 1750Ω | 100K | NC | FIL | 5Ω | |
| V5 | EL34 6CA7 | 5Ω | FIL | 1100Ω | 1750Ω | 100K | NC | FIL | 5Ω | |
| V6 | 12AX7 | 1540K | 470K | 1500Ω | 0Ω | 7Ω | 1546K | 1meg | 1500Ω | NC |
| V7 | 12AX7 | 120K | 0Ω ø 470K | 3300Ω | 14Ω | 7Ω | 120K | 150K ø1.7meg | 2700Ω | NC |
| V8 | 12AX7A | 690K | 0Ω | 3300Ω | 21Ω | 14Ω | 78K | 550K | 80K | NC |
| V9 | EL34 6CA7 | 5Ω | FIL | 1100Ω | 1750Ω | 100K | NC | FIL | 5Ω | |
| V10 | EL34 6CA7 | 5Ω | FIL | 1100Ω | 1750Ω | 100K | NC | FIL | 5Ω | |

ALL MEASUREMENTS MADE IN AUX POSITION WITH FILTERS AND MONITOR OFF UNLESS OTHERWISE DESIGNATED.
▲ MEASURED FROM CATHODE.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION
■ MEASURED WITH RUMBLE FILTER ON.
▲ MEASURED WITH MONITOR SWITCH ON.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±10% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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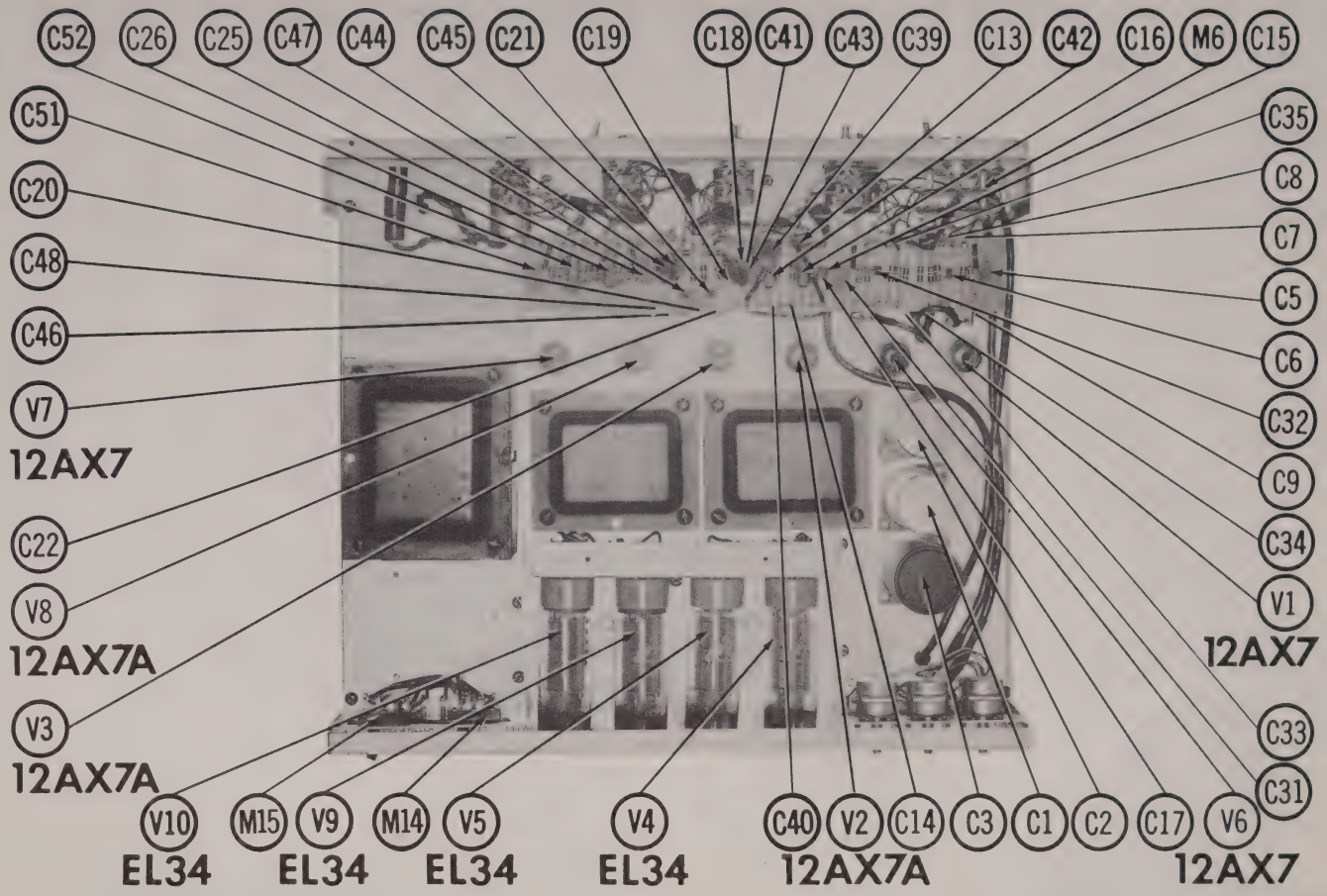
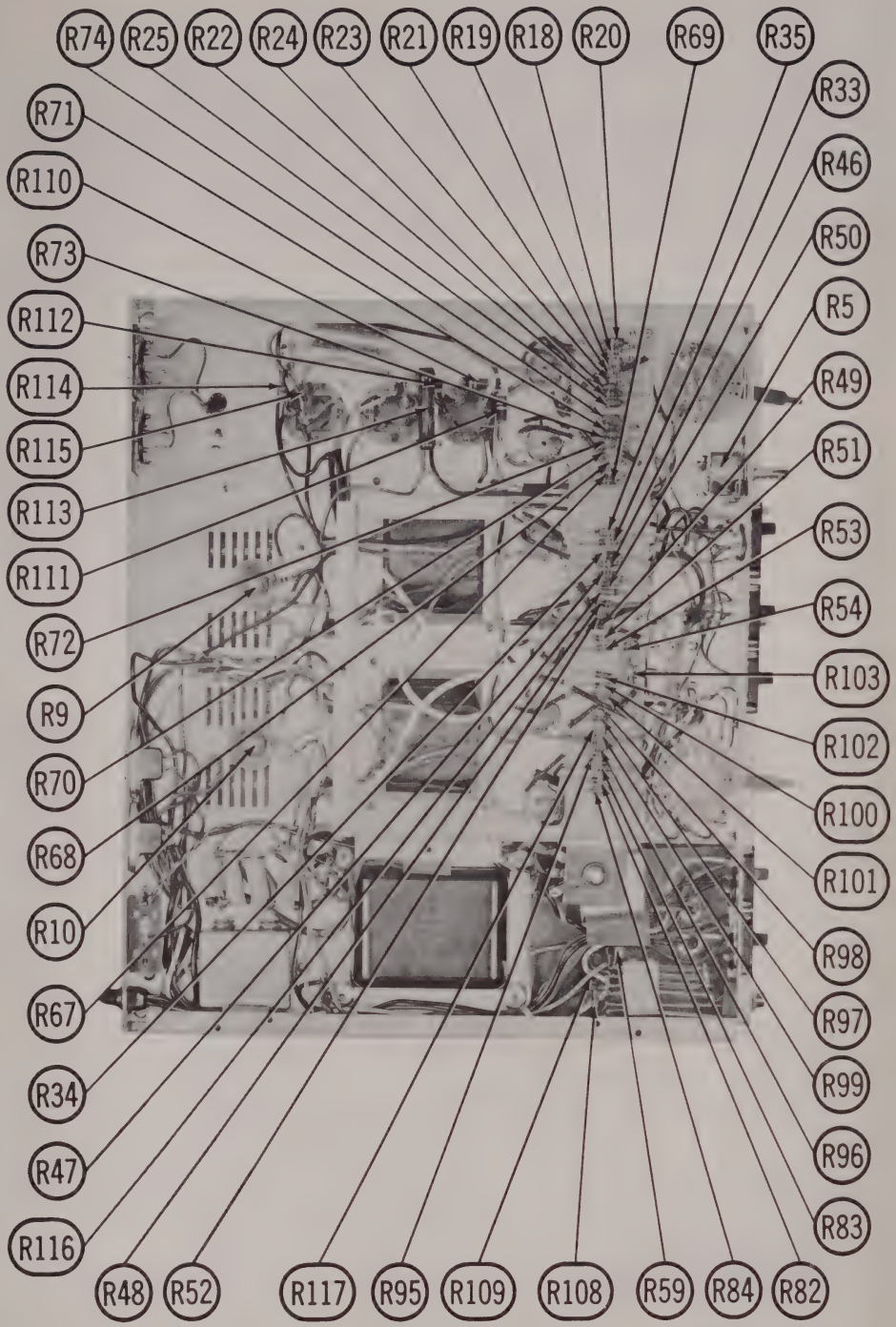
KNIGHT MODEL KN-775 (35DU773)




CHASSIS TOP VIEW-CAPACITOR, MISC. & TUBE IDENT.

KNIGHT MODEL
KN-775 (35DU773)




CHASSIS BOTTOM VIEW-RESISTOR IDENT.

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | Channel A Preamp. | 12AX7A | V6 | Channel B Preamp. | 12AX7 |
| V2 | Channel A AF Amp. | 12AX7A | V7 | Channel B AF Amp. | 12AX7 |
| V3 | Channel A AF Amp. - Phase Inverter | 12AX7A | V8 | Channel B AF Amp. - Phase Inverter | 12AX7A |
| V4 | Channel A Output | EL34/6CA7 | V9 | Channel B Output | EL34/6CA7 |
| V5 | Channel A Output | EL34/6CA7 | V10 | Channel B Output | EL34/6CA7 |

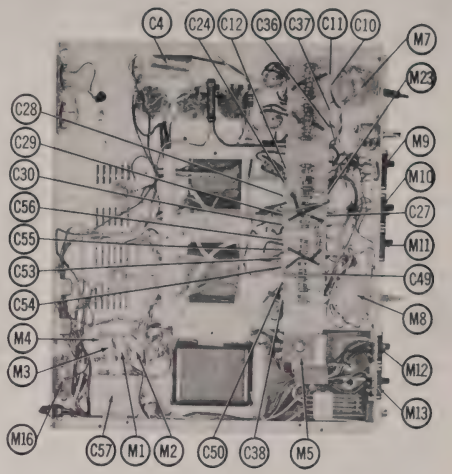
## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA KNIGHT PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲40 | 450 | CE-706C | AFH4-17 | D0160 | FP475.5 | TMQ-4634 | TVL-4771.3 | |
| B | ■10 | 450 | | | | | | | |
| C | ▲10 | 450 | | | | | | | |
| D | 10 | 450 | | | | | | | |
| C2A | ▲25 | 350 | CE-656-B | AFH3-37 | C0280 | FP376.5 | TMT-3730 | TVL-3780 | |
| B | ■20 | 300 | | | | | | | |
| C | ▲20 | 300 | | | | | | | |
| C3 | 1000 | 50 | CE-108E | | | WP068 | | TVL-1338 | |
| C4 | 35 | 50 | CE-406K-A | PRS1470 | BR505 | TT50X35 | TD-40-150 | TE-1306 | |

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C5 | 100 N220 10% | | | | | * | | 10TCR-T10 |
| C6 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C7 | 220 10% | | DI-220 | DD-221 | L10T22 | CCD-221 | GP322 | 10TS-T22 |
| C8 | .001 10% | | DI-1000 | DD-102 | 5R5D1 | CCD-102 | GP210 | 10TS-D10 |
| C9 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C10 | .022 200V | | P288N-022 | DD-203 | CUB4S22 | 4DP-2-223 | GEM-4122 | 2TM-S22 |
| C11 | .022 200V | | P288N-022 | DD-203 | CUB4S22 | 4DP-2-223 | GEM-4122 | 2TM-S22 |
| C12 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C13 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C14 | .056 200V | | P684CM-057 | | DPMS6S56 | 6DP-3-563 | GEM-6156 | 6PS-S56 |
| C15 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C16 | .0033 200V | | P288N-0033 | D6-332 | CUB6D33 | 6DP-1-332 | GEM-6233 | 6TM-D33 |
| C17 | 22 NPO 10% | | NPO-DI 22 | DTZ-22 | C10Q22C | CCTO-220 | CNO-422 | 10TCC-Q22 |
| C18 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C19 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C20 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C21 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C22 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C23 | .0047 200V | | P288N-0047 | D6-472 | CUB6D47 | 6DP-1-472 | GEM-6247 | 6TM-D47 |
| C24 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C25 | 100 N220 10% | | | | | * | | 10TCR-T10 |
| C26 | .0068 600V | | P688N-0068 | D6-682 | CUB6D68 | 6DP-1-682 | GEM-6268 | 6TM-D68 |
| C27 | 22 NPO 10% | | NPO-DI 22 | DTZ-22 | C10Q22C | CCTO-220 | CNO-422 | 10TCC-Q22 |
| C28 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C29 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C30 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C31 | 100 N220 10% | | | | | * | | 10TCR-T10 |
| C32 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C33 | 220 10% | | DI-220 | DD-221 | L10T22 | CCD-221 | GP322 | 10TS-T22 |
| C34 | .001 10% | | DI-1000 | DD-102 | 5R5D1 | CCD-102 | GP210 | 10TS-D10 |
| C35 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C36 | .022 200V | | P288N-022 | DD-203 | CUB4S22 | 4DP-2-223 | GEM-4122 | 2TM-S22 |
| C37 | .022 200V | | P288N-022 | DD-203 | CUB4S22 | 4DP-2-223 | GEM-4122 | 2TM-S22 |
| C38 | .1 200V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C39 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C40 | .056 200V | | P684CM-057 | | DPMS6S56 | 6DP-3-563 | GEM-6156 | 6PS-S56 |
| C41 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C42 | .0033 200V | | P288N-0033 | D6-332 | CUB6D33 | 6DP-1-332 | GEM-6233 | 6TM-D33 |
| C43 | 22 NPO 10% | | NPO-DI 22 | DTZ-22 | C10Q22C | CCTO-22 | CNO-422 | 10TCC-Q22 |
| C44 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C45 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C46 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C47 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |

# CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.




## FIXED CAPACITORS (cont)

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C48 | 330 10% | | DI-330 | DD-331 | L10T33 | CCD-331 | GP333 | 10TS-T33 |
| C49 | .0047 200V | | P288N-0047 | D6-472 | CUB6D47 | 6DP-1-472 | GEM-6247 | 6TM-D47 |
| C50 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C51 | 100 N220 10% | | | | | * | | |
| C52 | .0068 600V | | P688N-0068 | D6-682 | CUB6D68 | 6DP-1-682 | GEM-6268 | 6TM-D68 |
| C53 | 22 NPO 10% | | NPO-DI 22 | DTZ-22 | C10Q22C | CCTO-220 | CNO-422 | 10TCC-Q22 |
| C54 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C55 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C56 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C57 | 1mfd 600V | | JP630M-1.0 | | DYR6100 | | 6B605 | BP-106 |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA KNIGHT PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 500K 150K Tap | ½ | RP-105AS | BT-66 | | | FA55T154 | Volume, Channel A |
| B | 500K 150K Tap | ½ | | STR-66 | | | RU55T154 | Volume, Channel B |
| C | Shaft | | | Not Req. | | | CS3500 | |
| D | Switch | | | KR-1 | | | US41 | Power Off-On |
| R2A | 100K | ½ | RP-204B | B-41 | | | | Balance, Channel A |
| B | 100K | ½ | | SR-42 | | | | Balance, Channel B |
| R3A | 500K | ½ | RP-105AR | F1-41 | | | | Treble, Channel A |
| B | 500K | ½ | | R2-41 | | | | Treble, Channel B |
| C | Spring | | | AK-32 | | | | |
| R4A | 500K | ½ | RP-105AR | F1-41 | | | | Bass, Channel A |
| B | 500K | ½ | | R2-41 | | | | Bass, Channel B |
| C | Spring | | | AK-32 | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CONTROLS (cont)

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | KNIGHT PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R5A | 50K | ½ | RP-503G | | | | | Separation |
| B | Switch | | | | | | | Separation Off-On |
| R6A | 500K | | RP-105AJ | F1-41 | | † QJ-1110R | ■UE4030 | Aux. Level, Channel A |
| B | 500K | | | R2-41 | | | | Aux. Level, Channel B |
| R7A | 500K | | RP-105AJ | F1-41 | | † QJ-1110R | ■UE4030 | Tuner, Channel A |
| B | 500K | | | R2-41 | | | | Tuner, Channel B |
| R8A | 500K | | RP-105AJ | F1-41 | | † QJ-1110R | ■UE4030 | Mag. Level, Channel A |
| B | 500K | | | R2-41 | | | | Mag. Level, Channel B |
| R9A | 10Ω | 2(WW) | 15B16 | WN-100 | A43-10 | W11-010 | R10L | Tube Balance, Channel A |
| B | Shaft | | | Not Req. | FKS-1/4 | SK5 | Not Req. | |
| R10A | 10Ω | 2(WW) | RPW-100 | WN-100 | A43-10 | W11-010 | R10L | Tube Balance, Channel B |
| B | Shaft | | | Not Req. | FKS-1/4 | SK5 | Not Req. | |

† "CONCENTRIKIT" Equivalent: K-2 Kit with Base Elements and Shafts:
(Not available as a factory assembled unit) B13-133, P9-018 (Panel)
B13-133, R11-028 (Rear)

■ "STA-LOC" Equivalent: FA55A, RU55A, OK625, IK875.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R11 | 220K | | | |
| R12 | 47K | | | |
| R13 | 470K | | | |
| R14 | 100Ω | | | |
| R15 | 4.7meg | | | |
| R16 | 330K | | | |
| R17 | 180K | | | |
| R18 | 470K | | | |
| R19 | 470K | | | |
| R20 | 1500Ω | | | |
| R21 | 470K | | | |
| R22 | 1meg | | | |
| R23 | 470K | | | |
| R24 | 10meg | | | |
| R25 | 1500Ω | | | |
| R26 | 100K | | | |
| R27 | 39K | | | |
| R28 | 33K | | | |
| R29 | 220K | | | |
| R30 | 470K | | | |
| R31 | 3.3meg | | | |
| R32 | 100K | | | |
| R33 | 470K | | | |
| R34 | 100K | | | |
| R35 | 3300Ω | | | |
| R36 | 47K | | | |
| R37 | 4700Ω | | | |
| R38 | 47K | | | |
| R39 | 4.7meg | | | |
| R40 | 470K | | | |
| R41 | 47K | | | |
| R42 | 47K | | | |
| R43 | 33K | | | |
| R44 | 10meg | | | |
| R45 | 2.2meg | | | |
| R46 | 100K | | | |
| R47 | 2200Ω | | | |
| R48 | 680K | | | |
| R49 | 330K | | | |
| R50 | 3300Ω | | | |
| R51 | 470K | | | |
| R52 | 68K | | | |
| R53 | 1000Ω | | | |
| R54 | 100K | | | |
| R55 | 100Ω | | | |
| R56 | 100K | | | |

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R57 | 100Ω | | | |
| R58 | 100K | | | |
| R59 | 3300Ω 1W | | | |
| R60 | 220K | | | |
| R61 | 470K | | | |
| R62 | 47K | | | |
| R63 | 100Ω | | | |
| R64 | 4.7meg | | | |
| R65 | 330K | | | |
| R66 | 180K | | | |
| R67 | 470K | | | |
| R68 | 470K | | | |
| R69 | 1500Ω | | | |
| R70 | 470K | | | |
| R71 | 1meg | | | |
| R72 | 470K | | | |
| R73 | 10meg | | | |
| R74 | 1500Ω | | | |
| R75 | 100K | | | |
| R76 | 39K | | | |
| R77 | 33K | | | |
| R78 | 220K | | | |
| R79 | 470K | | | |
| R80 | 3.3meg | | | |
| R81 | 100K | | | |
| R82 | 470K | | | |
| R83 | 100K | | | |
| R84 | 3300Ω | | | |
| R85 | 47K | | | |
| R86 | 4700Ω | | | |
| R87 | 47K | | | |
| R88 | 4.7meg | | | |
| R89 | 470K | | | |
| R90 | 47K | | | |
| R91 | 47K | | | |
| R92 | 33K | | | |
| R93 | 10meg | | | |
| R94 | 2.2meg | | | |
| R95 | 100K | | | |
| R96 | 2200Ω | | | |
| R97 | 680K | | | |
| R98 | 330K | | | |
| R99 | 3300Ω | | | |
| R100 | 470K | | | |
| R101 | 68K | | | |

## RESISTORS (cont)

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R102 | 1000Ω | | | |
| R103 | 100K | | | |
| R104 | 100Ω | | | |
| R105 | 100K | | | |
| R106 | 100Ω | | | |
| R107 | 100K | | | |
| R108 | 100Ω | | | |
| R109 | 100Ω | | | |

| ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R110 | 10K 1W | | | |
| R111 | 47K 1W | | | |
| R112 | 10K 1W | | | |
| R113 | 750Ω 10W | PW10-750 | 10W-SQ-750 | |
| R114 | 3900Ω | | | |
| R115 | 22K | | | |
| R116 | 20K 5% | | | |
| R117 | 20K 5% | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | KNIGHT PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V @ 1.6A | 320V @ .440A AC | 6.3VCT @ 6A | LP-0292D | | | | | |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 32V @ .580A AC | | | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | KNIGHT PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 4800Ω CT | 16Ω Tap @ 8Ω, 4Ω | LO-0153B | | | | | |
| T3 | 4800Ω CT | 16Ω Tap @ 8Ω, 4Ω | LO-0153B | | | | | |

## POWER RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | CURRENT (Measured) | KNIGHT PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | |
| M1 | .200A | 1N1486 * | 1N1763 * | F6 * | SR500 * | * Silicon ♦ Selenium, Bridge Type |
| M2 | .200A | 1N1486 * | 1N1763 * | F6 * | SR500 * | † 4 Required. Add 8Ω surge limiter in transformer lead. |
| M3 | .200A | 1N1486 * | 1N1763 * | F6 * | SR500 * | |
| M4 | .200A | 1N1486 * | 1N1763 * | F6 * | SR500 * | |
| M5 | .320A | 11-5011 ♦ | 1N2859 † | 3833-1B1-RV ♦ | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | KNIGHT PART No. | NOTES |
|---|---|---|---|
| M6 | Switch | | Function Selector (Rotary Wafer Type) |
| M7 | Switch | | Stereo Monaural (Lever Type) |
| M8 | Switch | | Loudness Contour (Lever Type) |
| M9 | Switch | | Tape Monitor (4PTT Slide Type) |
| M10 | Switch | | Rumble Filter (DPDT Slide Type) |
| M11 | Switch | | Scratch Filter (DPDT Slide Type) |
| M12 | Switch | | "A" Phase (DPDT Slide Type) |
| M13 | Switch | | "B" Phase (DPDT Slide Type) |
| M14 | Switch | | Speaker Impedance "A" (4PTT Slide Type) |
| M15 | Switch | | Speaker Impedance "B" (4PTT Slide Type) |
| M16 | Circuit Breaker | | |

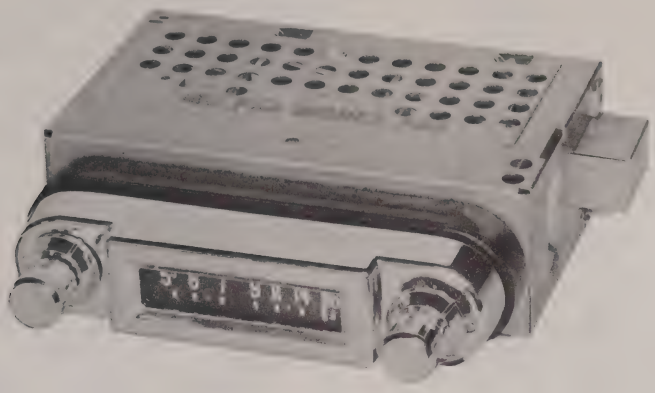
## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®





| | |
|---|---|
| TRADE NAME | Mopar Model 703 (R12BDT) For 1961 Dodge Trucks |
| MANUFACTURER | Bendix Radio Div., The Bendix Corp., Baltimore 4, Maryland |
| TYPE SET | Battery Operated 2 Tube - 2 Transistor Custom Built Truck AM Receiver |
| POWER SUPPLY | 12 Volt Storage Battery RATING 1.2 Amp. @12.6 Volts DC |
| TUNING RANGE – BROADCAST | 540 – 1600KC |

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 thru A4.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A8, A9, A10..... GENERAL CEMENT #9050-L, 9150
WALSCO #2521, 2524

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | High side thru .1mfd to pin 9 (grid) of Converter. Low side to chassis. | 262.5KC (400% Mod.) | High end stop. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | To antenna receptacle thru dummy (Fig. 1). | 1605KC | " | " | A5, A6, A7 | " |
| | Step 3 is not necessary unless the tuner has been tampered with or associated components have been replaced. If necessary, back tuning cores (A8, A9, A10) out of coils. Repeat Step 2. | | | | | |
| 3. | To antenna receptacle thru dummy (Fig. 1). | 1000KC | Tuner carriage .369" from high end stop. | Across voice coil. | A8, A9, A10 | Adjust for maximum output. Repeat Steps 2 and 3. |
| 4. | With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A7 for maximum output. | | | | | |

**PUSHBUTTON ADJUSTMENT**

1. Pull Pushbutton out.
2. Tune manually to desired station.
3. Press Pushbutton in firmly.
4. Repeat for remaining Pushbuttons.

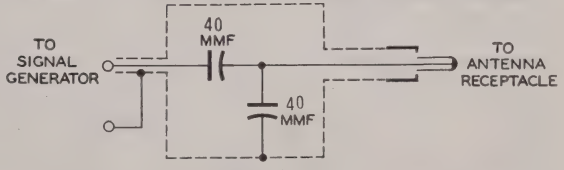



FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

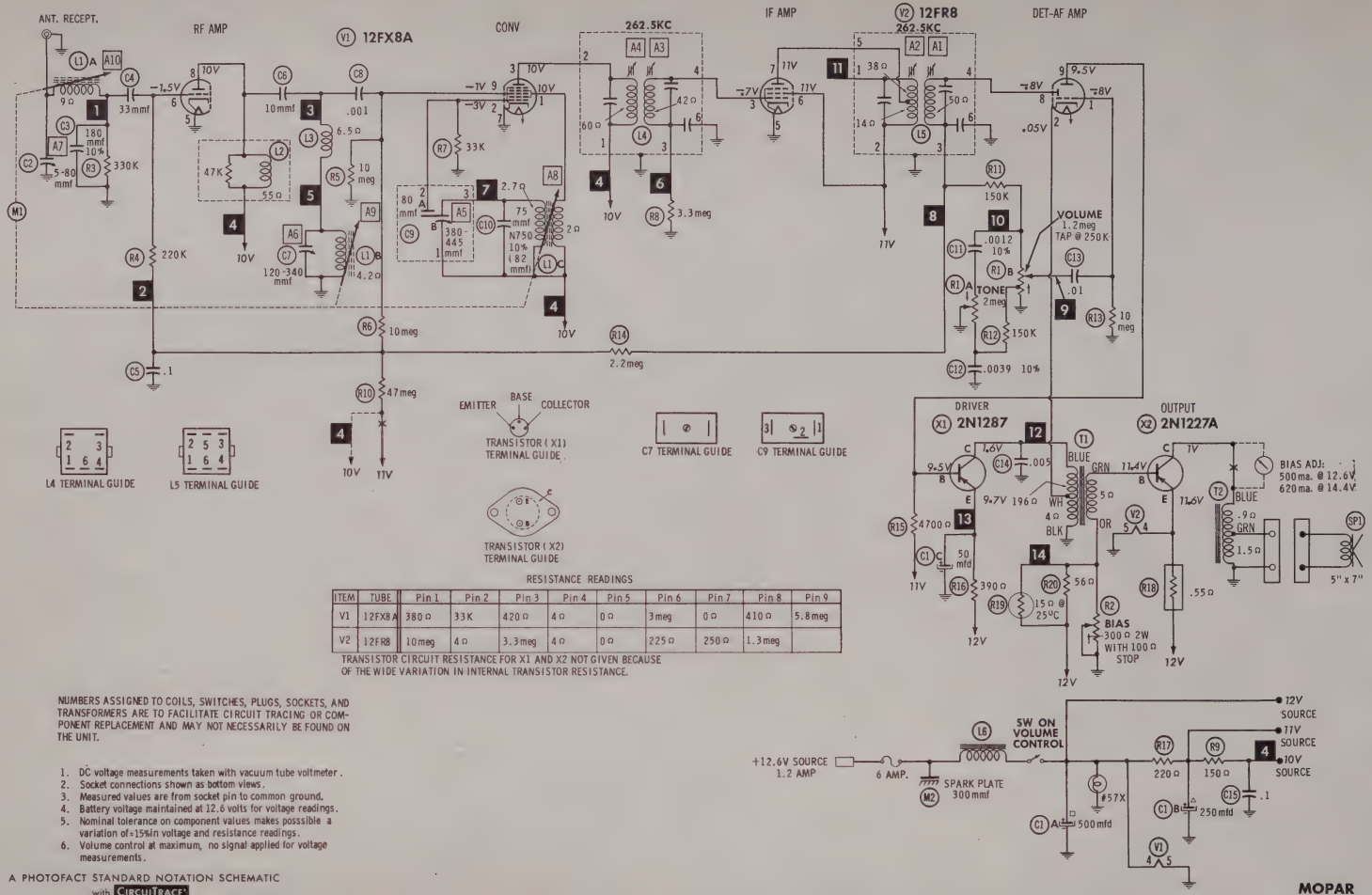
KD827



MOPAR
MODEL 703

MOPAR
MODEL 703

SET 548 FOLDER 9




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12FX8A | 380Ω | 33K | 420Ω | 4Ω | 0Ω | 3meg | 0Ω | 410Ω | 5.8meg |
| V2 | 12FR8 | 10meg | 4Ω | 3.3meg | 4Ω | 0Ω | 225Ω | 250Ω | 1.3meg | |

TRANSISTOR CIRCUIT RESISTANCE FOR X1 AND X2 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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**MOPAR MODEL 703**

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆ | | | | | |
|---|---|---|---|---|---|
| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
| V1 | RF Amp.-Conv. | 12FX8A | V2 | IF Amp.-Det.-AF Amp. | 12FR8 |

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | RCA PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | 2N1287 | Driver | 2N591 | 2N362 | | PNP |
| X2 | 2N1227A | Output | 2N301 | 2N633 | | PNP Note 1 |

Note 1. When replacing, apply silicone grease to both sides of insulator. Tighten mounting screws securely. Check bias adjustment.

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | BENDIX PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | |
| C1A | ■500 | 16 | 220353-20 | PWH3-00-93 | | WP300.87 † | | PCLS-3026.5* | |
| B | ▲250 | 16 | | | | | | | |
| C | 50 | 16 | | | | | | | |

† Use Printed Circuit Adapter Kit FPA.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
| C2 | 5-80 | #219083-1 | | | | 462 | | |
| C3 | 180 10% | | 1469-00018 | TCZ-180 | 22R5T18 | CM-19B-180K | CNO-318 | MS-318 |
| C4 | 33 | | DI-33 | DD-330 | L10Q33 | CCD-330 | GP433 | 10TS-Q33 |
| C5 | .1 100V | | P2151N-1 | DF-104 | BC2P1J | 1DP-2-104 | ACE-401 | 2SE-P10 |
| C6 | 10 | | SI 10 | D6-100 | L10T10 | CCD-100 | GP410 | 10TS-Q10 |
| C7 | 120-340 | #2091418-2 | | | | 303 | | |
| C8 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C9A | 80 | | NPO-SI 82 | TCZ-82 | C10Q82C | CCTO-820 | CNO-482 | 10TCC-Q82 |
| B | 380-445 | #2091418-1 | | | | 466 | | |
| C10 | 75 N750 10% | (82) † | N750-DI 75 | DTN-75 | C10Q75C | CCTN-750 | CN7-475 | 10TCU-Q75 |
| C11 | .0012 10% | | DI-1200 | DD-122 | 5R5D12 | CCD-122 | GP212 | 10TS-D12 |
| C12 | .0039 10% | | DI-4000 | | 5R5D39 | CCD-392 | JL-239 | 10TS-D39 |
| C13 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C14 | .005 | | BPD-005 | DD-502 | BYA10D5 | CCD-502 | B-250 | 5HK-D50 |
| C15 | .1 100V | | P2151N-1 | DF-104 | BC2P1J | 1DP-2-104 | ACE401 | 2SE-P10 |

# Bendix Part Number.
† Alternate Value.

## CONTROLS

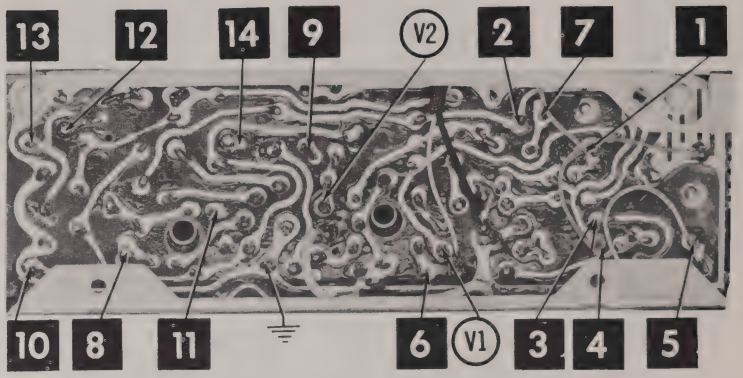
| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | BENDIX PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | |
| R1A | 2meg | ½ | 2091419-1 | | | | | |
| B | 1.2meg 250K Tap | ½ | | | | | ■ UE4234-S | Tone Volume |
| C | Switch | | | | | | | Power Off-On |
| R2 | 300Ω 100Ω Stop | 2(WW) | 219555-17 | | 39-200 * | 112-200 * | FL-200 * | Bias |

* Use 100Ω 2W. Resistor in series with terminal.
■ "STA-LOC" equivalent: FEA26A, RUI25T254, OSI937, IS2437, US41

# PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED




## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA | | | ITEM No. | RATING | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | IRC PART No. | WORKMAN TV PART No. | REMARKS | | | IRC PART No. | WORKMAN TV PART No. | REMARKS |
| R3 | 330K | | | | R13 | 10meg | | | |
| R4 | 220K | | | | R14 | 2.2meg | | | |
| R5 | 10meg | | | | R15 | 4700Ω | | | |
| R6 | 10meg | | | | R16 | 390Ω | | | |
| R7 | 33K | | | | R17 | 220Ω | | | |
| R8 | 3.3meg | | | | R18 | .55Ω | | | Pt. #209094-B |
| R9 | 150Ω | | | | R19 | 15Ω @ 25°(TC) | | | Pt. #220629-5 |
| R10 | 47meg | | | | R20 | 56Ω | | | |
| R11 | 150K | | | | | | | | |
| R12 | 150K | | | | | | | | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | | BENDIX PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | |
| L1A | Ant. | 2091464-2 ① | | | | | ① Part of Tuner Mi. |
| B | RF | | | | | | ② Includes 47K. |
| C | Osc. | | | | | | |
| L2 | RF Choke | 2090088-17 ② | | | | | |
| L3 | RF Choke | 2090088-16 | | | | | |
| L4 | Input IF | 2090907-8 | | | | | |
| L5 | Output IF | 2090908-6 | | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## FILTER CHOKE

| ITEM No. | RATINGS | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CURRENT (Measured) | DC RES. | INDUCTANCE (0 CURRENT 1000 ~) | BENDIX PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| L6 | 1.2A | .3Ω | 1100UH | 2091107-4 | | | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | TURNS RATIO | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | BENDIX PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 10 | 1 | 2090815-3 | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | PRI. | BENDIX PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 20Ω Tap @ 6-8Ω | 2090849-4 | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | BENDIX PART No. | QUAM PART No. | |
| SP1 | 5"x 7" | PM | 6-8Ω | 2091588-1 | 57A21Z8 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | BENDIX PART No. | NOTES |
|---|---|---|---|
| M1 | Tuner Ass'y. | 2091464-2 | Complete |
| M2 | Spark Plate | 220267-12 | 300mmf |
| | Printed Board | 2091595-1 | Complete, Less Tubes |

## CABINETS & CABINET PARTS

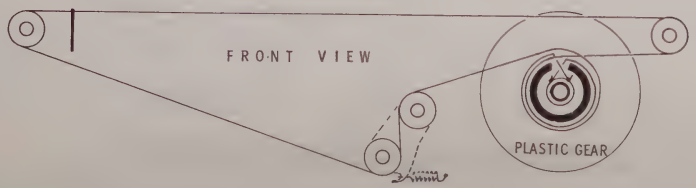
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Dial Glass | 2091454-1 | Plain |
| Dial Pointer | 2091459-1 | |
| Knob | 2091420-1 | Tuning, Volume |
| Knob | 2091209-1 | Tone |

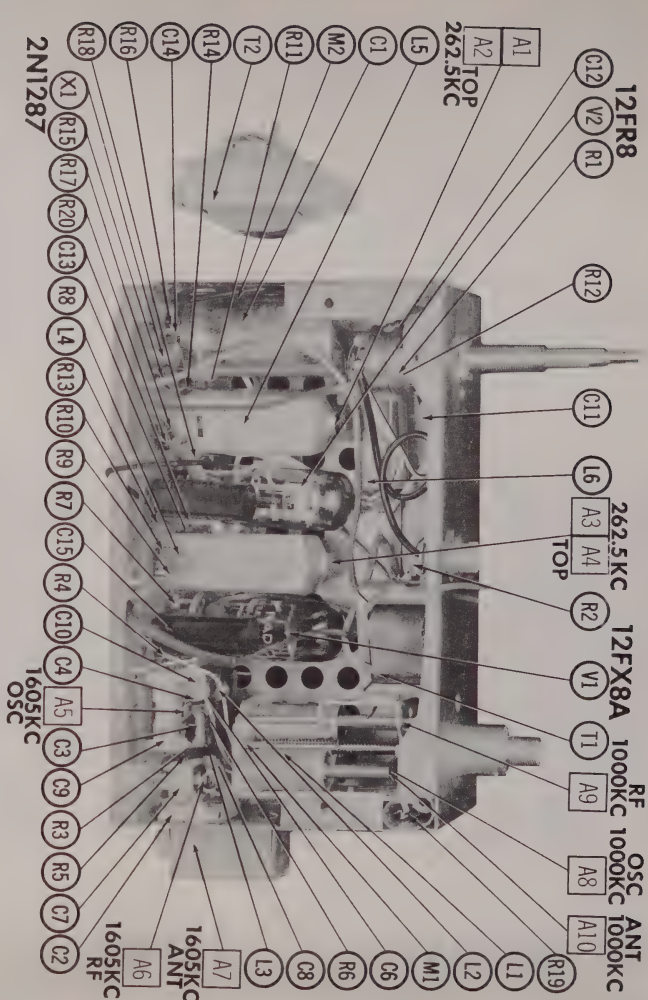
## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

## DIAL CORD STRINGING




## CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

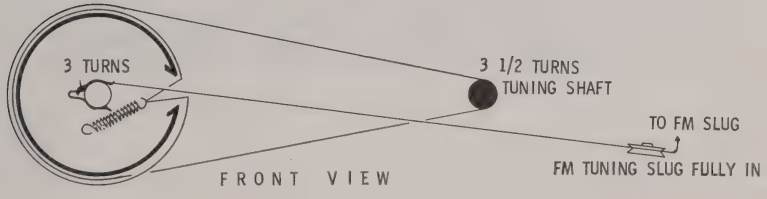
**PHILCO
MODEL J-995**

PHILCO
MODEL J-995

PHILCO
MODEL J-995

| | |
|---|---|
| TRADE NAME | Philco Model J-995 |
| MANUFACTURER | Philco Corp., Tioga & C Streets, Philadelphia, Pa. |
| TYPE SET | AC-DC Operated 6 Tube FM Receiver |
| POWER SUPPLY | 110 – 120 Volts AC-DC RATING 29 Watts, .33 Amp. @117 Volts AC |
| TUNING RANGE—FREQ. MOD. | 88 – 108MC |

## DRIVE CORD STRINGING




**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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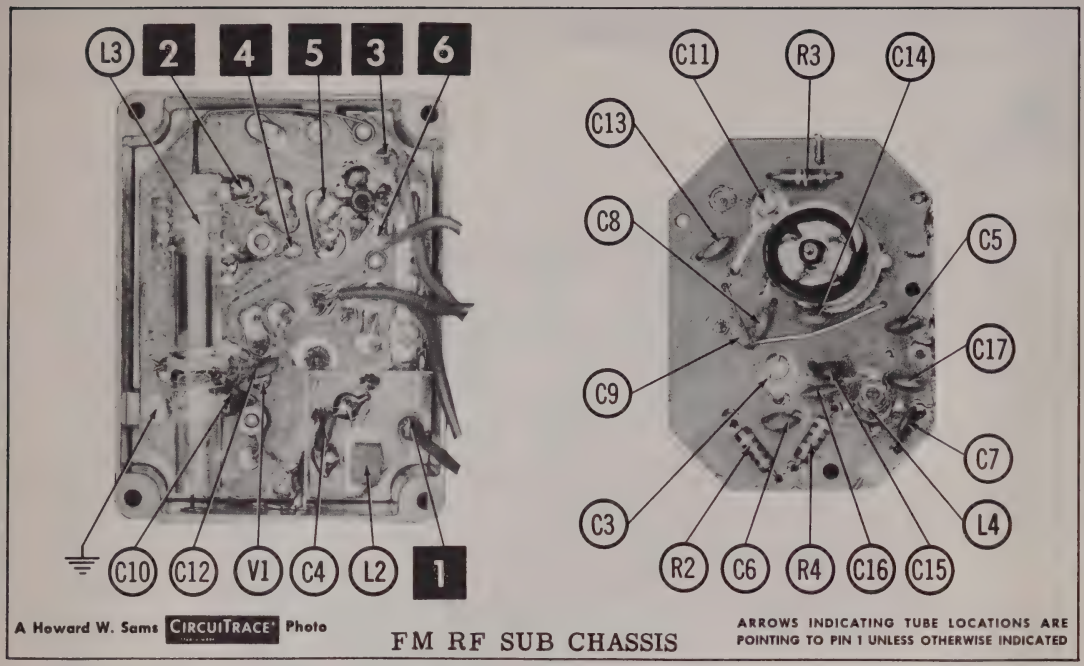
KI647



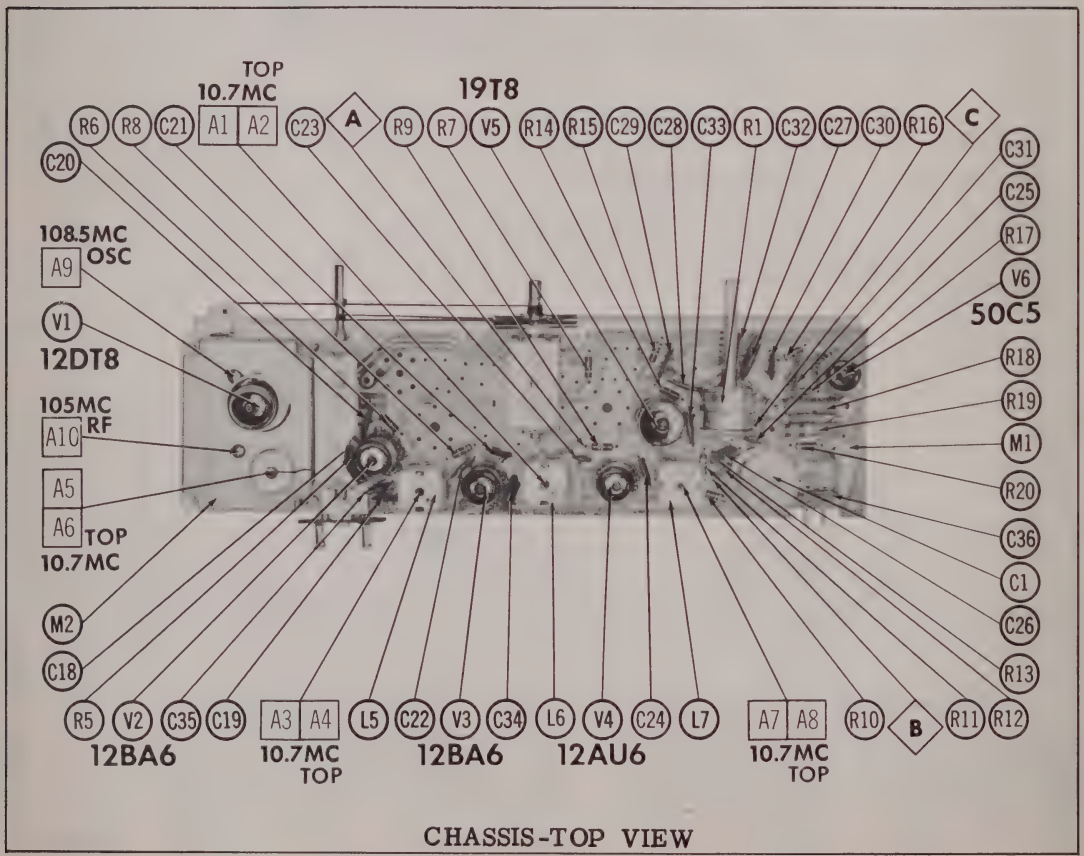
SET 548 FOLDER 10



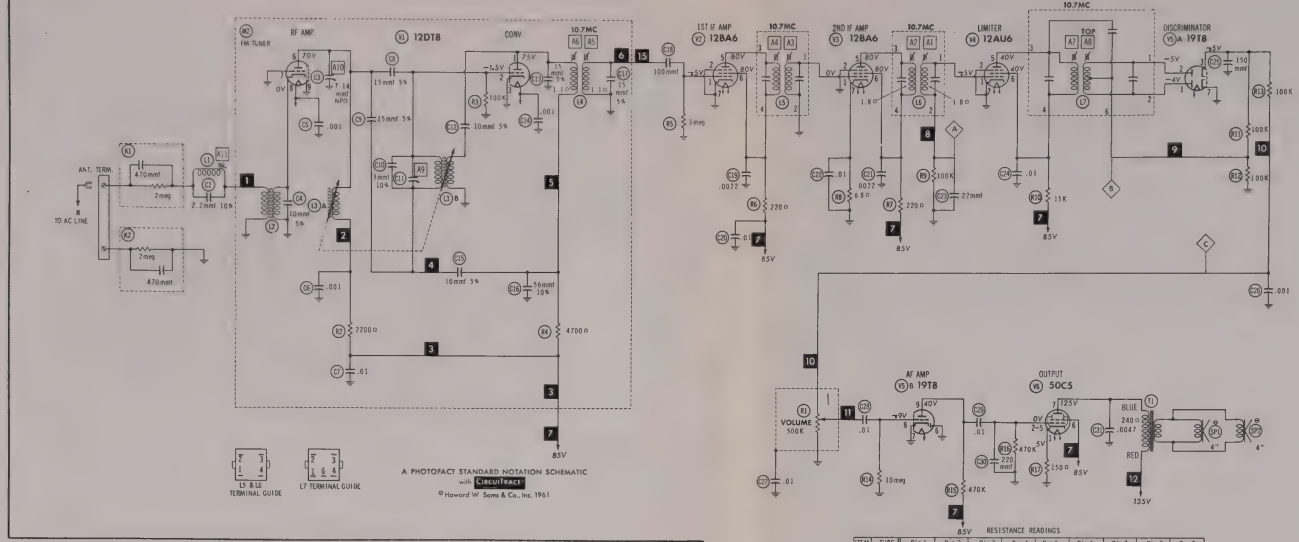

A Howard W. Sams CIRCUITRACE® Photo

FM RF SUB CHASSIS

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

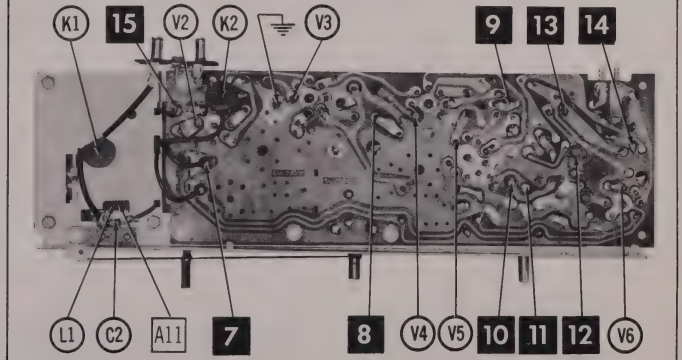



CHASSIS-TOP VIEW




| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12DT8 | 16000Ω | 100K | 0Ω | 70Ω | 90Ω | 13500Ω | 0Ω | 1Ω | 0Ω |
| V2 | 12BA6 | 1meg | 0Ω | 70Ω | 55Ω | 11500Ω | 11500Ω | 0Ω | | |
| V3 | 12BA6 | 1Ω | 0Ω | 55Ω | 40Ω | 11500Ω | 11500Ω | 68Ω | | |
| V4 | 12AU6 | 100K | 0Ω | 40Ω | 25Ω | 16K | 16K | 0Ω | | |
| V5 | 19T8 | 100K | 100K | 170K | 25Ω | 0Ω | 0Ω | 0Ω | 10meg | 1470K |
| V6 | 50C5 | 150Ω | NC | 170Ω | 90Ω | 470K | 11360Ω | 1400Ω | | |

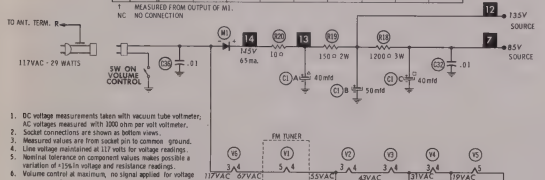
1 MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION




A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

**PHILCO**
**MODEL J-995**

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1 thru A4, A7, A8. . . GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6. . . . . GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544
A9, A10. . . . . GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Across antenna terminals. | 10.7MC (Unmod.) | Point of non-interference. | DC probe to point Ⓐ. Common to chassis. | A1, A2, A3, A4, A5, A6 | Adjust for maximum deflection. |
| 2. | " | " | " | DC probe thru 1meg to point Ⓑ. Common to chassis. | A7 | " |
| 3. | " | " | " | DC probe to point Ⓒ. Common to chassis. | A8 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC Sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Across antenna terminal. | 10.7MC (450KC Swp) | Point of non-interference. | Vert. amp. to point Ⓐ. Low side to chassis. | A1, A2, A3, A4, A5, A6 | Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. |
| 2. | " | " | " | Vert. amp. thru 47K to point Ⓑ. Low side to chassis. | A7 | " |
| 3. | " | " | " | Vert. amp. to point Ⓒ. Low side to chassis. | A8 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of cross-over lines. |

RF ALIGNMENT

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 4. | Across antenna terminals with 150Ω in each lead. | 108.5MC (Unmod.) | High end stop. | DC probe to point Ⓐ. Common to chassis. | A9 | Adjust for maximum deflection. |
| 5. | " | 105MC | 105MC | " | A10 | " |

TRAP ADJUSTMENT

All is a 200MC trap to reduce TV interference from channels 9 thru 13.

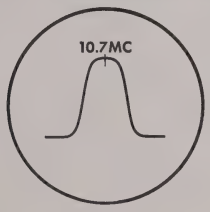


FIG. 1

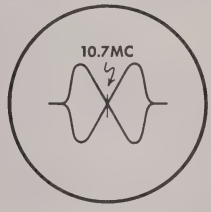


FIG. 2

# PARTS LIST AND DESCRIPTIONS

## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |

## TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

| ITEM No. | USE | TYPE | ITEM No. | USE | TYPE |
|---|---|---|---|---|---|
| V1 | RF Amp. -Converter | 12DT8 | V4 | Limiter | 12AU6 |
| V2 | 1st IF Amplifier | 12BA6 | V5 | Disc. -AF Amp. | 19T8 |
| V3 | 2nd IF Amplifier | 12BA6 | V6 | Output | 50C5 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA PHILCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲40 | 150 | 30-2585-13 | PWH3-11-30 | XC0105 † | PFP311.63 | TMT-3133‡ | PCL-3441.2 | |
| B | 50 | 150 | | | | | | | |
| C | ■40 | 150 | | | | | | | |

† Use Printed Circuit Adapters #55277 & 55278.
‡ Use Printed Circuit Adapter Kit TMA.

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | 2.2 10% | | NPO-SI 2.2 | TCZ-2R2 | C10V22C | CCTO-2R2 | CNO-522 | 10TCC-V22 |
| C3 | 7-14 NPO | #31-6531-2 | | | | | | |
| C4 | 10 5% | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C5 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C6 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C7 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C8 | 15 5% | | | DTZ-15 | C10Q15C | | CNO-415 | 10TCC-Q15 |
| C9 | 15 5% | | | DTZ-15 | C10Q15C | | CNO-415 | 10TCC-Q15 |
| C10 | 3 10% | | NPO-DI 3.0 | DTZ-3R3 | C10V3C | CCTO-3R3 | CNO-533 | 10TCC-V33 |
| C11 | | #31-6531-1 | | | | | | |
| C12 | 10 5% | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C13 | 15 5% | | | DTZ-15 | C10Q15C | | CNO-415 | 10TCC-Q15 |
| C14 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C15 | 10 5% | | NPO-DI 10 | DTZ-10 | C10Q1C | CCTO-100 | CNO-410 | 10TCC-Q10 |
| C16 | 56 10% | | NPO-DI 56 | DTZ-56 | C10Q56C | CCTO-560 | CNO-456 | 10TCC-Q56 |
| C17 | 15 5% | | | DTZ-15 | C10Q15C | | CNO-415 | 10TCC-Q15 |
| C18 | 100 | | DI-100 | DD-101 | L10T1 | CCD-101 | GP310 | 10TS-T10 |
| C19 | .0022 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C20 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C21 | .0022 | | BPD-0022 | DD-222 | BYA10D22 | CCD-222 | B-222 | 5HK-D22 |
| C22 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C23 | 22 | | DI-22 | DD-220 | L10Q22 | CCD-220 | GP422 | 10TS-Q22 |
| C24 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C25 | 150 | | DI-150 | DD-151 | L10T15 | CCD-151 | B-315 | 10TS-T15 |
| C26 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C27 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C28 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C29 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C30 | 220 | | DI-220 | DD-221 | L10T22 | CCD-221 | B-322 | 10TS-T22 |
| C31 | .0047 | | BPD-0047 | DD-472 | BYA10D47M | CCD-472 | B-247 | 5HK-D47 |
| C32 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C33 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C34 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C35 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C36 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

# Philco Part Number.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA PHILCO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 500K | ½ | 33-5575-30 | | | | | Volume |
| B | Switch | | | | | | | Power Off-On |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R2 | 2200Ω | | | |
| R3 | 100K | | | |
| R4 | 4700Ω | | | |
| R5 | 1meg | | | |
| R6 | 220Ω | | | |
| R7 | 220Ω | | | |
| R8 | 68Ω | | | |
| R9 | 100K | | | |
| R10 | 15K | | | |
| R11 | 100K | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R12 | 100K | | | |
| R13 | 100K | | | |
| R14 | 10meg | | | |
| R15 | 470K | | | |
| R16 | 470K | | | |
| R17 | 150Ω | | | |
| R18 | 1200Ω 3W | PW3-1200 | 3W-SQ-1200 | |
| R19 | 150Ω 2W | | | |
| R20 | 10Ω | | | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | PHILCO PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Antenna Filter | 470mmf, 2meg | 30-6040-1 | Centralab RC-471<br>Sprague AC1-1 |
| K2 | Antenna Filter | 470mmf, 2meg | 30-6040-1 | Centralab RC-471<br>Sprague AC1-1 |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA PHILCO PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1 | Trap | 32-4796-1 | | | | | |
| L2 | Ant. | | | | | | |
| L3A | RF | 76-12068 | | | | | |
| B | Osc. | | | | | | |
| L4 | 1st IF | 32-4798-1 | | | | | |
| L5 | 2nd IF | 32-4712-1 | FM-256 | 1463-PC | RTC-9046 | T654 | |
| L6 | 3rd IF | 32-4712-2 | FM-256 | 1463-PC | RTC-9046 | T654 | |
| L7 | Discriminator | 32-4714-3 | | 1464-PC | RTC-9050 | T658 | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA PHILCO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | 1400Ω | 1-2Ω | 322-0054 | A-3025 | A-3332 | 24S53 | S-20X | |

## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA PHILCO PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 4" | PM | 3-4Ω | 36-1675-12 | 4A05 | * May be used in some versions. |
| SP2 | 4" | PM | 3-4Ω | 36-1675-12 | 4A05 | |
| | 4" | PM | 3-4Ω | 36-1675-11 * | | |

## POWER RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA PHILCO PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .065A | 34-8048-2 | 1N1763 | 40H | SR200 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | PHILCO PART No. | NOTES |
|---|---|---|---|
| M2 | FM Tuner Printed Board | 54-5810-2 | Complete, Includes Printed Panel #54-5811-1 |

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 54-6653-10 | Tuning, Volume |
| Cabinet | 54-5813-5 | Back |
| Cabinet | 54-5812-4 | Front |

PHOTOFACT® Folder with CIRCUITRACE®

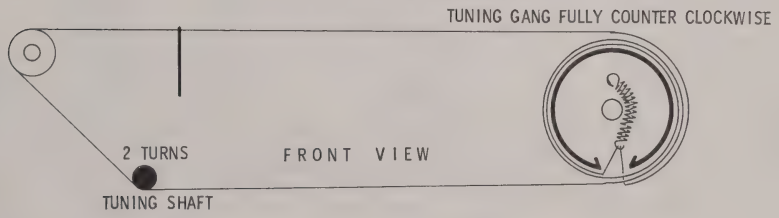
**PILOT**
**MODEL MARK II**

PILOT
MODEL MARK II

PILOT
MODEL MARK II

| | |
|---|---|
| TRADE NAME | Pilot Model Mark II |
| MANUFACTURER | Pilot Radio Corp., 37-06 36th Street, Long Island City 1, N. Y. |
| TYPE SET | AC Operated 4 Tube FM Tuner |
| POWER SUPPLY | 105 — 120 Volts AC, 60 Cycles RATING 28 Watts, .25 Amp. @117 Volts AC |
| TUNING RANGE— FREQ. MOD. | 88 — 108MC |

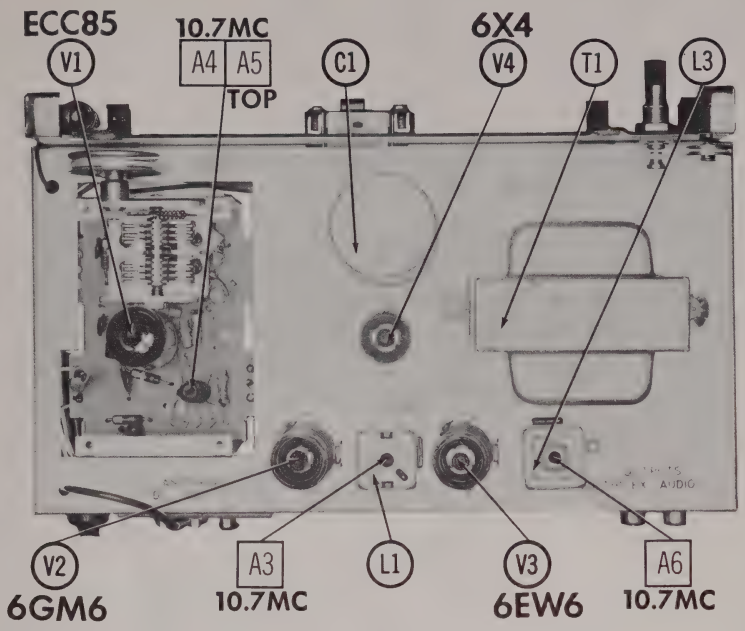
## DIAL CORD STRINGING



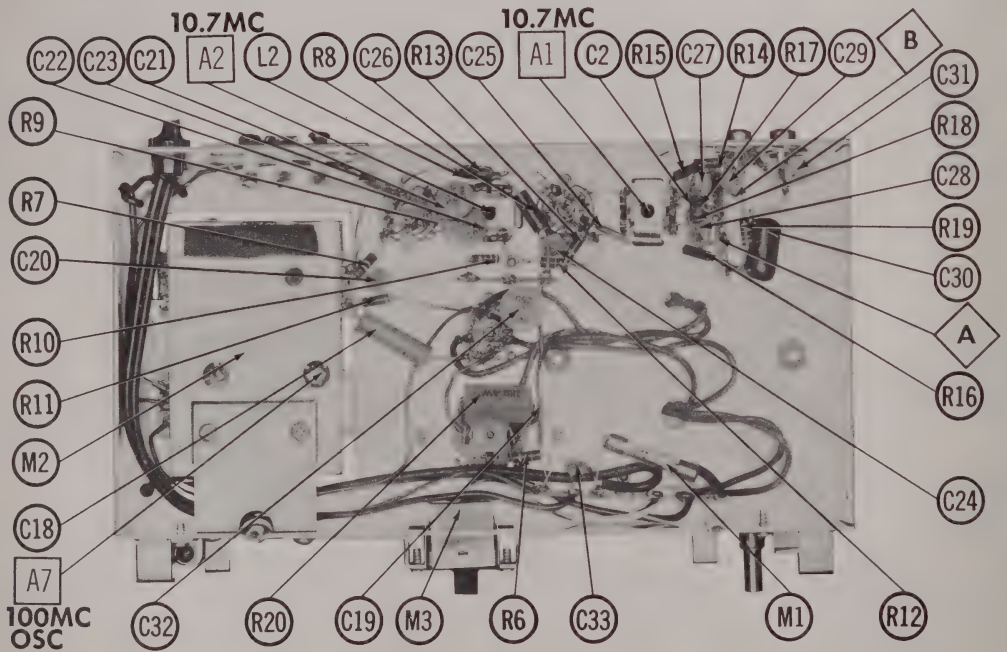

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

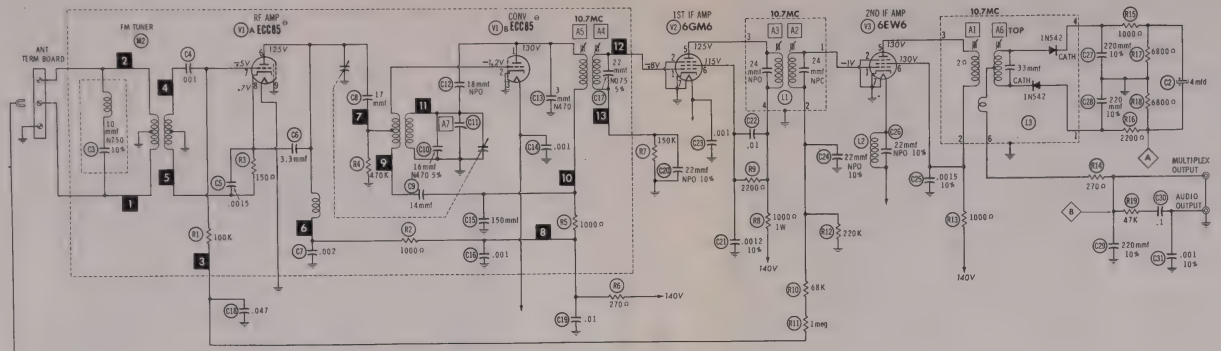
KJ750

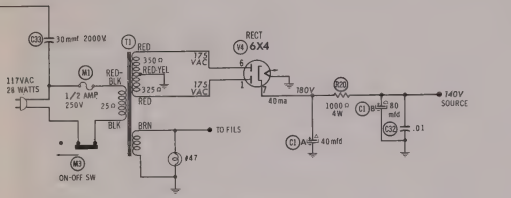



CHASSIS TOP VIEW




CHASSIS BOTTOM VIEW




COLOR DOT TERM VIEW L1 — COLOR DOT TERM VIEW L3

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | ECC85 | †2300Ω | 470K | 0Ω | FIL | FIL | †2300Ω | 1.3meg | 150Ω | 0Ω |
| V2 | 6GM6 | 150K | 0Ω | FIL | FIL | †2000Ω | †4200Ω | 0Ω | | |
| V3 | 6EW6 | 220K | 0Ω | FIL | FIL | †2000Ω | †2000Ω | 0Ω | | |
| V4 | 6X4 | 325Ω | NC | FIL | FIL | NC | 325Ω | ¶ INF | | |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V4. NC NO CONNECTION

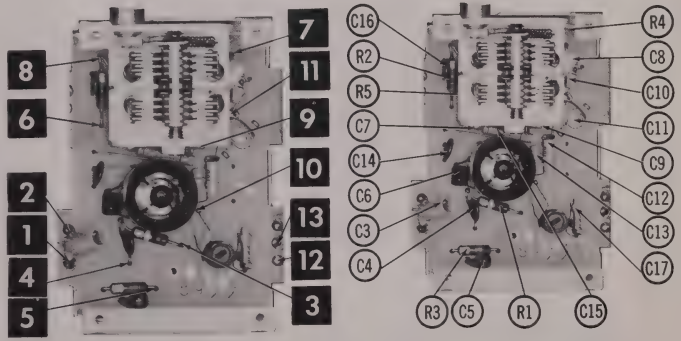
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

**PILOT**
**MODEL MARK II**




A Howard W. Sams CIRCUITRACE Photo

FM RF SUB CHASSIS

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1, A6.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A2, A3..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A4, A5..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A7.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Across antenna terminals. | 10.7MC (Unmod.) | Point of non-interference. | DC probe to point Ⓐ. Common to chassis. | A1, A2, A3, A4, A5 | Adjust for maximum deflection. |
| 2. | " | " | " | DC probe to point Ⓑ. Common to chassis. | A6 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 1. | Across antenna terminals. | 10.7MC (400~ Mod.) | Point of non-interference. | Vert. amp. to point Ⓐ. Low side to chassis. | A1, A2, A3, A4, A5 | Disconnect stabilizing capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2. |
| 2. | " | " | " | Vert. amp. to point Ⓑ. Low side to chassis. | A6 | Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A1 for maximum amplitude and straightness of cross-over lines. |

RF ALIGNMENT

| | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 3. | Across antenna terminals with 120Ω in each lead. | 100MC (Unmod.) | 100MC | DC probe to point Ⓐ. Common to chassis. | A7 | Adjust for maximum deflection. |

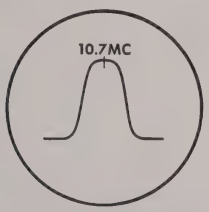


FIG. 1

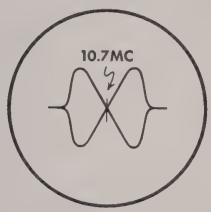


FIG. 2

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆) |
|---|---|---|
| V1 | RF Amp.-Converter | ECC85 (6AQ8) * |
| V2 | 1st IF Amplifier | 6GM6 |
| V3 | 2nd IF Amplifier | 6EW6 |
| V4 | Rectifier | 6X4 |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA PILOT PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▲40 | 250 | 24-115 | AFH2-54 | | WP412.8 | | TVL-1630 | |
| B | ▲80 | 250 | | PRS1585 | | | | TVA-1511 | |
| C2 | 4 | 25 | 24-188 | PTT77 | NLW4-50 | TT50X4 | MLV5-25 | TE-1201.2 | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C3 | 10 N750 10% | | N750-SI 10 | TCN-10 | C10Q1U | CCTN-100 | CN7-410 | 10TCU-Q10 |
| C4 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C5 | .0015 | | BPD-0015 | DD-152 | BYA10D15 | CCD-152 | B-215 | 5HK-D15 |
| C6 | 3.3 | | NPO-SI 3.3 | TCZ-3R3 | C10V33C | CCTO-3R3 | CNO-533 | 10TCC-V33 |
| C7 | .002 | | BPD-002 | DD-202 | BYA10D2 | CCD-202 | B-220 | 5HK-D20 |
| C8 | 17 | | NPO-SI 18 | TCZ-18 | C10Q18C | CCTO-180 | CNO-418 | 10TCC-Q18 |
| C9 | 14 | | NPO-SI 15 | TCZ-15 | C10Q15C | CCTO-150 | CNO-415 | 10TCC-Q15 |
| C10 | 16 N470 5% | | | | | * | | |
| C11 | | | | | | | | |
| C12 | 18 NPO | | NPO-SI 18 | TCZ-18 | C10Q18C | CCTO-180 | CNO-418 | 10TCC-Q18 |
| C13 | 3 N470 | | | | | * | | |
| C14 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C15 | 150 | | SI 150 | D6-151 | L10T15 | CCD-151 | GP315 | 10TS-T15 |
| C16 | .001 | | BPD-001 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C17 | 22 N075 5% | | | | | * | | |
| C18 | .047 100V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C19 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C20 | 22 NPO 10% | | NPO-DI 22 | DTZ-22 | C10Q22C | CCTO-220 | CNO-422 | 10TCC-Q22 |
| C21 | .0012 10% | | DI-1200 | DD-122 | 5R5D12 | CCD-122 | GP212 | 10TS-D12 |
| C22 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C23 | .001 | | DI-1000 | DD-102 | BYA10D1 | CCD-102 | B-210 | 5HK-D10 |
| C24 | 22 NPO 10% | | NPO-DI 22 | DTN-22 | C10Q22C | CCTO-220 | CNO-422 | 10TCC-Q22 |
| C25 | .0015 10% | | DI-1500 | DD-152 | 5R5D15 | CCD-152 | GP215 | 10TS-D15 |
| C26 | 22 NPO 10% | | NPO-DI 22 | DTZ-22 | C10Q22C | CCTO-220 | CNO-422 | 10TS-Q22 |
| C27 | 220 10% | | DI-220 | DD-221 | L10T22 | CCD-221 | GP322 | 10TS-T22 |
| C28 | 220 10% | | DI-220 | DD-221 | L10T22 | CCD-221 | GP322 | 10TS-T22 |
| C29 | 220 10% | | DI-220 | DD-221 | L10T22 | CCD-221 | GP322 | 10TS-T22 |
| C30 | .1 100V | | P288N-1 | DF-104 | CUB2P1 | 2DP-3-104 | GEM-201 | 2TM-P10 |
| C31 | .001 10% | | DI-100 | DD-102 | 5R5D1 | CCD-102 | GP210 | 10TS-D10 |
| C32 | .01 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C33 | 30 2000V | | HVD-30-33 | DD30-300 | HVA20Q33 | 3CCQ-330 | 2DY-433 | 30GA-Q30 |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R1 | 100K | | | |
| R2 | 1000Ω | | | |
| R3 | 150Ω | | | |
| R4 | 470K | | | |
| R5 | 1000Ω | | | |
| R6 | 270Ω | | | |
| R7 | 150K | | | |
| R8 | 1000Ω 1W | | | |

## RESISTORS (cont)

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R9 | 2200Ω | | | |
| R10 | 68K | | | |
| R11 | 1meg | | | |
| R12 | 220K | | | |
| R13 | 1000Ω | | | |
| R14 | 270Ω | | | |
| R15 | 1000Ω | | | |
| R16 | 2200Ω | | | |
| R17 | 6800Ω | | | |
| R18 | 6800Ω | | | |
| R19 | 47K | | | |
| R20 | 1000Ω 4W | PW5-1000 | 5W-SQ-1000 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA PILOT PART No. | Merit PART No. | Miller PART No. | Stancor PART No. | Workman TV PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| L1 | 2nd IF | 273-151 | FM-254 | 1463 | RTC-8599 | T633 | † Connect 2 Crystals Externally |
| L2 | Fil. Choke(1.5uh) | 75-54 | BC-562 | 4604 | RTC-8516 | T856 | |
| L3 | Ratio Detector | 279-80 | FM-255 † | 1465 † | RTC-8600 † | T635 † | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | REPLACEMENT DATA PILOT PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 117V Ⓐ .25A | 350VCT Ⓐ .040A DC | 6.3V Ⓐ 1.8A | 55-80 | | | | | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA PILOT PART No. FUSE | PILOT PART No. HOLDER | LITTELFUSE PART No. FUSE | LITTELFUSE PART No. HOLDER | BUSS PART No. FUSE | BUSS PART No. HOLDER |
|---|---|---|---|---|---|---|---|---|
| M1 | 3AG | 1/2A 250V F/T | 111-21 | | 315.500 (3AG 1/2A 250V) S/B) | | MDV 1/2 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | PILOT PART No. | NOTES |
|---|---|---|---|
| M2 | FM Tuner | 110-628 | Complete |
| M3 | Switch | 101-29 | Power Off-On (SPDT Slide Type) |

## WIRING DATA

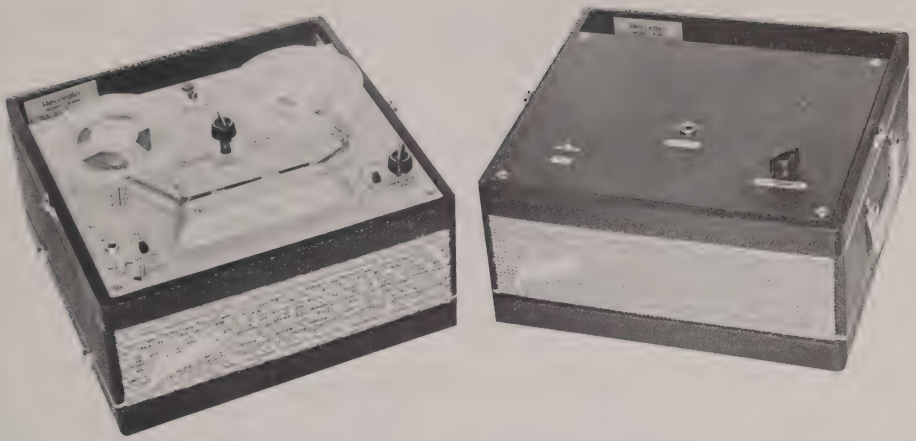
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder



RECORDIO MODELS
804, 806, SA-807



RECORDIO MODELS
804, 806, SA-807

## GENERAL INFORMATION

Recordio Models R-804 and R-806 are similar in basic design and construction. The Model R-804 is designed to record and play dual-track monaural recordings. Model R-806 is designed to record and play dual-track monaural recordings, and in addition, will play two-track or four-track prerecorded stereophonic tapes when connected to an external amplifier and speaker system.

The R-804 is equipped with a monaural half-track head, a single channel 2-watt amplifier, and one 4-inch speaker.

The R-806 is equipped with a stereophonic, quarter-track head, a single channel 2-watt amplifier, and two 4-inch speakers. In addition, the R-806 is equipped with a high gain pre-amplifier for driving, an external amplifier, and speaker system to provide for the playback of the lower (right) channel of stereophonic tapes. The upper (left) channel is played through the self-contained 2-watt amplifier.

Models R-804 and R-806 have tape speeds of 7 1/2 and 3 3/4 inches per second. Using both tracks of the tape the recording time is as follows:

| Reel Size | 3 3/4" Speed | 7 1/2" Speed |
|---|---|---|
| 5" (600 ft) | 1 Hour | 1/2 Hour |
| 7" (1200 ft) | 2 Hours | 1 Hour |

New monaural recordings can be made on previously recorded tape when the Record-Play switch is in the Record position. Monaural recordings can be made from a radio, television receiver, or phonograph in addition to those made directly from a microphone.

These recorders operate on 60 cycles, 117 volts AC only.

Manufactured By:

Recordio Corporation
Charlotte, Michigan

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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CQ468



SET 548 FOLDER 12

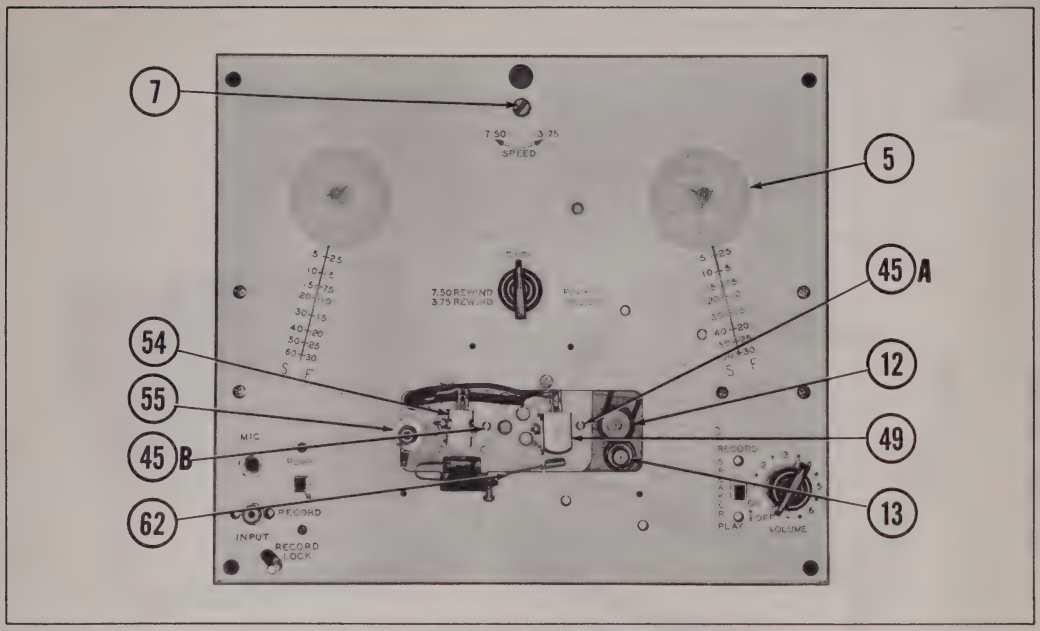



FIG.1 TOP VIEW OF MECHANISM

## FUNCTION OF CONTROLS, SWITCHES, AND JACKS

### On-Off Volume, and Record Level Control

Rotating this control clockwise, turns the unit on and is used as the volume control when playing a recording.

When making a recording, it is used as a record level control. Use the calibrated scale and pointer to select the proper record level.

### Rewind, Stop, Play-Record Control

This control places the tape mechanism in the proper mode of operation when recording or playing back a reel of tape.

### Play-Record Switch

This slide switch controls the play or record functions of the unit.

CAUTION: This control must be in the Play position when rewinding or playing a tape; otherwise, complete erasure of the tape will result.

### Record Lock

This control is of the sliding lever type and is located below and slightly to the left of the "Play-Record" switch. Used for the purpose of preventing accidental erasure of tapes, the lever must be pushed to the left before the "Play-Record" switch can be placed in "Record" position. Make sure the "Play-Record" switch is returned to the "Play" position before playing a tape.

### Speed Change Control

This control is the slotted shaft located at the rear center of the unit. By inserting a coin or screwdriver into the slot, the control can be turned to select either 7 1/2 or 3 3/4 inches per second operating speed. For 7 1/2 ips operation, this control must be turned firmly until it snaps into position.

CAUTION: Do not change the speed control while the unit is operating; stop the unit first.

### Speaker Switch

When recording from a microphone, place the switch in the Record position to prevent squeal or feedback. When playing a recording, the switch must be in the Play position.

### Microphone Jack

This jack, located at the left of the unit, serves as the input when recording from a microphone. When playing or rewinding, the microphone plug should be removed to prevent feedback.

### Input Jack ( Radio, Phono, TV)

Located below the microphone jack, this jack serves as a low level input for recording from radio, TV, or phonograph. It also serves as a constant low level output for playing tapes through an external Hi-Fi amplifier or for the purpose of duplicating tapes, using two recorders.

## Phono In and Pre-Amp Out Jacks ( Model 806)

These jacks are located at the right rear in the storage compartment and are used to play Stereo records or Stereo tapes in conjunction with an external amplifier.

# OPERATING INSTRUCTIONS

## Threading the Tape

1. Place a reel of tape on the supply spindle (left) making certain the reel slots engage the protrusions on the reel spindle. Place an empty reel on the take-up spindle (right), again making certain the reel slots engage the protrusions on the take-up spindle.
2. Unwind about 14 inches of tape from the supply reel. Hold a section of the tape taut and insert in the tape slot, making sure the dull-coated side of the tape faces away from the operator.
3. Insert the free end of the tape into one of the three slots in the hub of the take-up reel. While holding the end in place, give the reel two or three turns until the tape is secured to the reel.
4. The tape must be threaded between the tape guide sleeve (located below the take-up reel) and the reel, not around it.

## To Record from a Microphone

1. Turn the On-Off-Volume control to the On position and allow about 30 seconds for the amplifier to warm up.
2. Place the Speaker Switch in Record position.
3. Push Record Lock lever to the left and hold in this position.
4. Slide the Record-Play switch to Record position and release the Record Lock lever.
5. Adjust the Volume control so that the arrow is at approximately 4 1/2 on the numbered scale, and turn Rewind, Stop, Play-Record control to the Play-Record position.
6. Hold the microphone 2 or 3 inches away from your mouth and talk in a normal tone of voice.

NOTE: The setting of the Volume control for recording will vary with the strength of the voice and the distance from the microphone. After several satisfactory recordings have been made, the location of the arrow can be used as a reference for future recordings.

## To Record from a Radio, Television Receiver or Phonograph

1. Connect one end of a patch cord across the voice coil of a radio, television receiver, or phonograph.
2. Plug the other end of the patch cord into the Input jack.
3. Set the volume control of the radio, television receiver, or phonograph to normal room volume. If external equipment has a tone control, this should be set at treble.
4. Proceed as outlined in "To Record from a Microphone".

## To Use the Second Track

1. Place the Rewind, Stop, Play-Record Control to the Stop position after all the tape has been wound onto the take-up reel.
2. Remove the empty reel from the supply spindle.
3. Remove the reel containing the tape. Turn it over and place it on the supply spindle.
4. Place the empty reel on the take-up spindle.
5. Thread the tape and proceed as outlined under "To Record from a Microphone" or "To Record from a Radio, Television Receiver, or Phonograph".

## To Erase the Tape

When the Rewind, Stop, Play-Record control and the Play-Record switch are in Record position, the erase head is activated and automatically erases previous recorded material while a new recording is being made. Material no longer needed may be erased without recording. The setup is the same for erasing as for recording, except that the Volume, Control should be turned to minimum. One track is erased at a time. To erase the second track, reverse the reels and proceed as previously noted.

## Fast Rewind

This unit has two rewind speeds, the speed being determined by the setting of the Speed Control. Faster rewind is obtained when the Speed Control is set at 7 1/2 ips.

CAUTION: When rewinding, the Play-Record switch must be in the Play position; otherwise, complete erasure of the recording will result.

## To Play a Recording

1. Thread the tape as outlined under "Threading the Tape".
2. Set Speed control to the speed at which recording was made.
3. Set Record-Play switch to Play and turn Rewind, Stop, Play-Record Control to the Play-Record position.
4. Adjust the volume to the desired level.

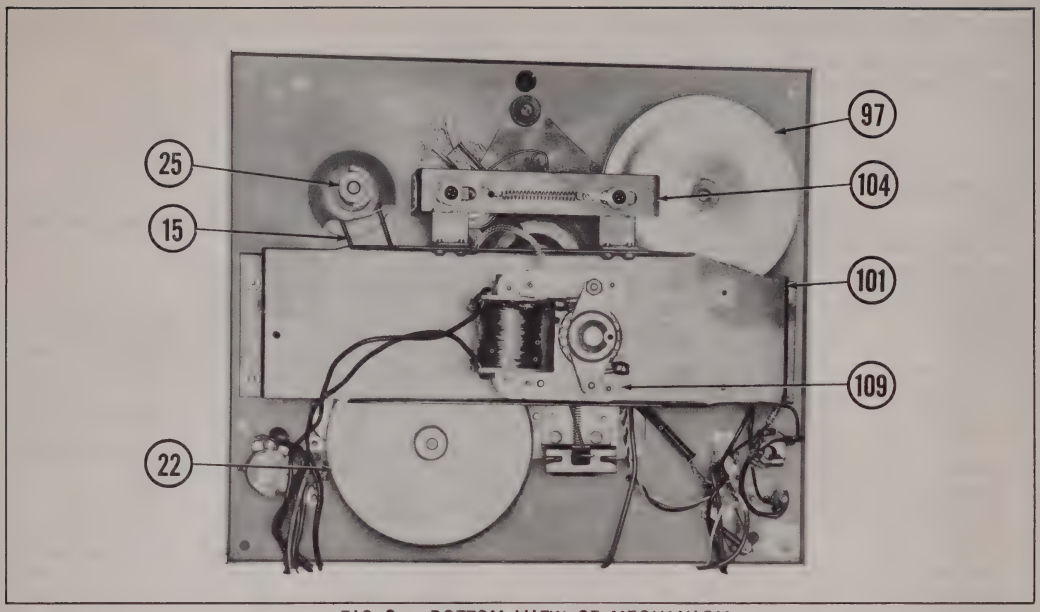



FIG.2 BOTTOM VIEW OF MECHANISM

### To Record from Phonograph Turntable

1. Plug the output lead of the turntable into the Input jack.
2. Proceed as outlined under "To Record from a Microphone".

NOTE: Since the microphone (which can pick up external noise) is not being used, the Speaker Switch can be pushed to the Play position, so that the recording can be heard through the built-in speakers.

### To Use as Amplifier for Phono Turntable

Push the Speaker switch to the Play position, and the Play-Record switch to the Record position. Adjust Volume control to desired listening level.

### To Play Tape through External Amplifier ( Monaural)

1. Connect the Input jack of the recorder to the input of the external amplifier.
2. Turn the Rewind-Stop-Play knob to Play.
3. Adjust the external amplifier to the desired listening level.

NOTE: In the Play position, the input jack acts as a constant low-level output. Varying the Volume control will have no effect on the output. To hear both the recorder and the external amplifier, advance the recorder Volume control. The Speaker switch must be in the Play position.

### To Play Stereo Quarter-Track Tapes ( Model R806)

1. Thread the tape as outlined under "Threading the Tape.
2. Connect the jack marked Pre-Amp Out to the input of the external amplifier.
3. Proceed as outlined under "To Play a Recording".
4. Adjust volume control on external amplifier so that volume is the same as recorder volume.

### To Play Stereo Records ( Model R-806)

1. Connect one output cable from the turntable to the Input jack on the recorder.
2. Connect the other output cable to the Phono-In jack.
3. Connect an external amplifier to the Pre-Amp. Out jack.
4. Turn the recorder on and adjust the volume controls for equal volume from both speakers.

## DISASSEMBLY INSTRUCTIONS

### To Remove Unit from Case

1. Remove four Phillips head screws holding transport assembly in case.
2. Remove four Phillips head screws from basket holding Phono-In and Pre-Amp Out jacks.

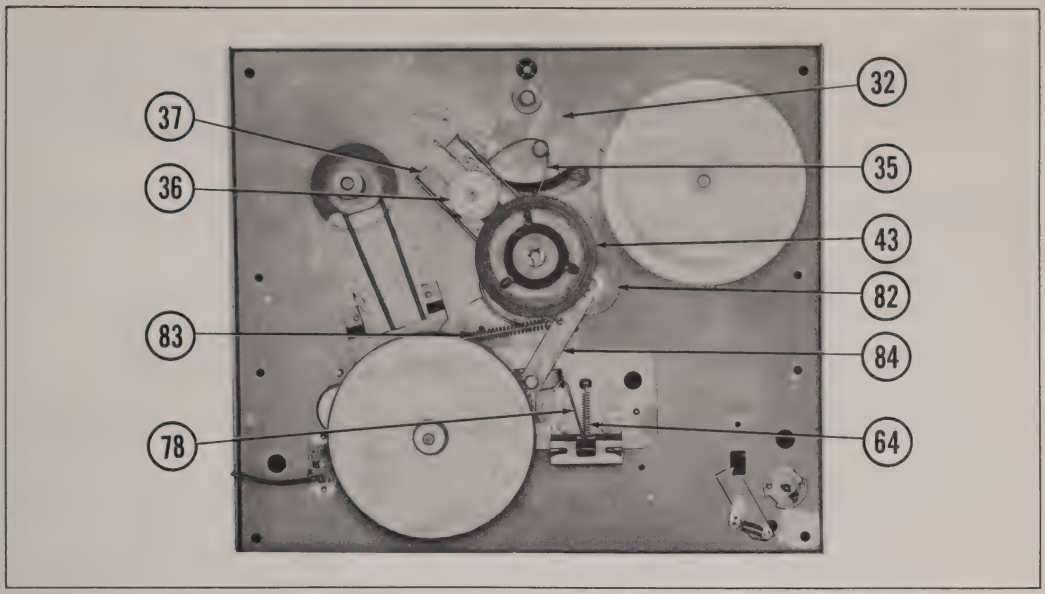



FIG.3 BOTTOM VIEW OF MECHANISM WITH DRIVE MOTOR PLATE REMOVED

3. Lift transport unit up as far as possible and disconnect speaker leads. Note that black lead plugs into terminal with phasing dot.

4. Remove two Phillips head screws holding stereo preamp. unit.

NOTE: Steps 2 and 4 does not apply to Model R-804.

## ADJUSTMENTS

### Pressure Pad and Spring Assembly

1. Remove front escutcheon (3).

2. Turn the Rewind-Stop-Record/ Play control to the Play position. Do not turn recorder on.

3. Use a pencil-type postal scale and check the amount of pressure necessary to just pull the right-hand pad away from the play-record head. With the scale at the end of the pressure pad and spring assembly, adjust locked adjustment screw (73) until a reading of 1 oz., $\pm$ 1/4 oz., is obtained.

4. Adjust the erase head pressure pad by bending the left-hand portion of pressure pad and spring assembly (62) for 3/4 oz. pressure against tape.

After adjustments are made, return the Rewind-Stop-Record/ Play control to the Stop position.

### Play Record Head

An alignment tape recorded at a frequency of 6,000 cps should be used when aligning the head.

1. Remove front and rear escutcheons (3) and (1), and clean pole pieces of play/ record head (49) with a soft cloth and alcohol.

2. Thread alignment tape on recorder, and turn Volume control to maximum. Connect VTVM across speaker voice-coil terminals. Set meter for 3 volts AC.

3. Place unit in Play mode, at 7 1/2 ips speed. Decrease volume to point where output is 1 volt on meter. Adjust play/ record head adjustment screw (45) for maximum deflection on meter.

4. Gently press right-hand portion of pressure pad assembly (62) at extreme right of play/ record head. Output on meter should not increase. If a slight gain is noted, readjustment of the pressure pad assembly may be necessary.

### Erase Head

1. Thread the tape on recorder. Turn recorder on, place Rewind-Stop-Record/ Play control to the Record position. Allow tape to run for a few seconds, then turn recorder off. Leave control in Record position.

2. Adjust tape height as follows:

   (a) Check to see if tape is even with top edge of the erase head pole piece. To adjust the level of the tape, loosen set screw (53) and turn threaded tape-guide post (55) to move tape up or down.

   (b) If adjust of head azimuth is necessary, adjust by tightening or loosening slotted screw (45A).

## TROUBLE CHART

| Symptom | Cause | Remedy |
|---|---|---|
| Transport does not function in any mode. | 1. Inoperative motor.<br>2. Motor pulley loose on motor shaft. | 1. Replace or repair motor.<br>2. Tighten set screw in pulley. |
| Record-Play switch will not stay locked in Play position. | 1. No tension on Record Lock Post. | 1. Check to determine if Record Lock lever spring (95) is either loose or broken. |
| Tape fails to wind on take-up reel during Play or Record. | 1. Pinch roller (12) does not engage capstan shaft (13).<br>2. Idler wheel (43) does not engage flywheel (22).<br>3. Reel drive spring (35) loose, disconnected, or broken. | 1. Check for either loose or broken cam follower spring (83).<br>2. Check for either broken or loose idler tension spring (35).<br>3. Repair or replace spring. |
| Tape spills when Rewind-Stop Record/ Play control is turned to Stop position. | 1. Brake shoes out of adjustment.<br>2. Felt brake pad (104A-B) worn out or missing. | 1. Bend brake shoes for normal drag.<br>2. Replace brake pads. |
| "Wow" during operation of recorder. | 1. Brake return spring (108) disconnected or broken.<br>2. Check all driving surfaces for oil or foreign matter. | 1. Connect or replace spring (108).<br>2. Clean with a soft cloth and alcohol. |
| "Flutter" during operation of recorder. | 1. Dirty-play-record head (49), pressure pads, capstan shaft or pinch roller (12). | 1. Clean with a soft cloth and alcohol. |
| No erase or erase is incomplete. | 1. Spring (64) disconnected or broken.<br>2. Erase head (54) not adjusted properly.<br>3. Erase head dirty. | 1. Connect or replace spring (64).<br>2. See "Erase Head Adjustment" under Adjustments.<br>3. See "Cleaning". |
| Does not record. | 1. Faulty microphone or cord.<br>2. Faulty input jack.<br>3. Faulty tube.<br>4. Open play/ record head (49).<br>5. Dirty play/ record head (49).<br>6. Play-record head not adjusted properly. | 1. Replace if necessary after checking recorder with another type of input.<br>2. Check and replace if necessary.<br>3. Check tubes.<br>4. Check continuity. After checking continuity, demagnetize head.<br>5. See "Cleaning".<br>6. See "Play-Record Head Adjustment" under Adjustments. |
| Motor and amplifier inoperative. | 1. Power supply defective.<br>2. Damaged power cord.<br>3. Defective On-Off switch. | 1. Check voltages per schematic.<br>2. Repair or replace.<br>3. Replace switch. |

## LUBRICATION

All rotating parts are provided with generous size oilite bearings, lubricated at the factory. Under normal use no further lubrication is necessary. In heavy-duty service, the following parts should be lubricated once a year with a drop of SAE10 motor oil.

1. Top and bottom motor bearings.
2. Capstan shaft bearing.
3. Pinch roller (12) bearing.
4. Idler and drive wheel bearings.
5. Reel spindle bearings.
6. Speed shift cam (32).

CAUTION: Do not over-lubricate. Oil must be kept off all rubber idlers, belts, and periphery of flywheel, and all parts that might transfer oil to them. Always wipe excess lubricant from parts that have been lubricated.

## CLEANING

The record/play head (49), capstan shaft (13), pinch roller (12), and erase head (54) are subject to an accumulation of tape oxide coating worn off the tape as it passes these parts. This accumulation may cause faint recordings, poor playback, or crosstalk; therefore, it should be removed periodically. Wipe off the above surfaces carefully with a soft cloth and alcohol.

## MECHANICAL PARTS LIST

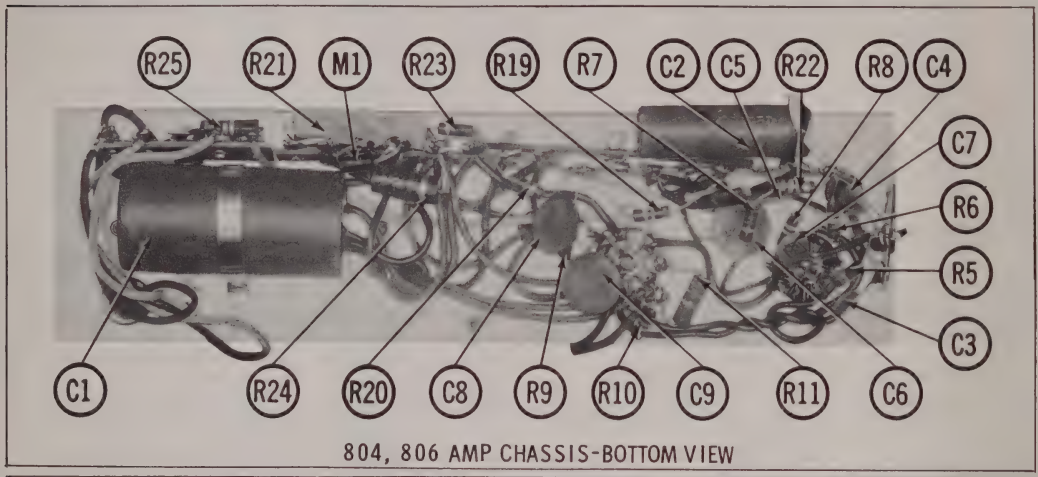
| Ref. No. | Part No. | Description |
|---|---|---|
| 1 | C-19.1660-1 | Rear Escutcheon |
| 2 | 57-6C-603-5 | #6-32 x 3/16" Phillips Head Screw (2 req'd.) |
| 3 | B-19.1659-1 | Front Escutcheon |
| 4 | 57-6C-620-5 | #6-32 x 1 1/4" Phillips Head Screw (2 req'd.) |
| 5 | C-13.318-2 | Reel Pan Assembly (2 req'd.) |
| 6 | 73-2340-1 | Linen Washers (4 req'd.) |
| 7 | B-32.478-1 | Speed Shift Control Shaft |
| 8 | C-13.253-7 | Speed Shift Knob, and Volume Control Knob |
| 9 | B-32.475-1 | Control Shaft |
| 10 | C-33.418-2 | 1/8" E Ring |
| 11 | 73-2243-75 | Brass Washer |
| 12 * | B-33.404 * | *Pinch Roller |
| 13 | B-32.379 | Capstan Shaft |
| 14 | B-28.163 | Linen Washer (2 req'd.) |
| 15 | B-31.497 | Reel Drive Spring |
| 16 | D-35.1416-1 | Baseplate Assembly |
| 17 | | #4-40 x 1" Phillips Hd. Screw |
| 18 | | Tape Guide Sleeve |
| 19 | 57-4C-606-5 | #6-32 x 3/8" Phillips Oval Head Screw (4 req'd.) |
| 20 | B-28.163 | Linen Washer |
| 21 | 73-2248-39 | Phenolic Washer (2 req'd.) |
| 22 | C-13.257-1 | Flywheel |
| 23 | 57-3698-0 | #8-32 x 3/16" Bristol Head Set Screw |
| 24 | 73-2340-1 | Linen Washer (2 req'd.) |
| 25 | B-32.477-1 | Spacer Bushing |
| 26 | 57-3690-0 | #8-32 x 3/16" Bristol Head Set Screw |
| 27 | B-32.473 | Pinch Roller Plate Spacer(Top) |
| 28 | B-35.1398-1 | Pinch Roller Plate Assembly |
| 29 | B-32.472 | Pinch Roller Plate Spacer (Bottom) |
| 30 | 57-3698-0 | #8-32 x 3/16" Bristol Head Set Screw |
| 31 | 73-2241-74F | Flat Washer |
| 32 | B-35.1401-1 | Speed Shift Cam Assembly |
| 33 | 73-2231-5 | #8 Internal Lockwasher |
| 34 | 57-1C-807-1 | #8-32 x 7/16" Phillips Head Screw |
| 35 | B-31.491 | Idler Tension Spring |
| 36 | B-32.466 | Idler Slide Bushing |
| 37 | B-35.1403-1 | Idler Slide Plate Assembly |
| 38 | B-31.327 | Idler Lift Compression Spring |
| 39 | 73-2241-143 | Flat Steel Washer |
| 40 | C-33.418-3 | E Ring |
| 41 | 73-2241-150 | Flat Steel Washer (2 req'd.) |
| 42 | B-28.163 | Linen Washer (3 req'd.) |
| 43 * | B-33.408 * | *Idler Wheel |
| 44 | B-33.418-2 | 1/8" E Ring |
| 45 | 57-16C-404-1 | #4-40 x 1/4" Slotted Screw (2 req'd.) |
| 46 | 73-2241-134 | Flat Steel Washer (2 req'd.) |
| 47 | 57-1C-602-1 | #6-32 x 1/8" Phillips Head Screw (4 req'd.) |
| 48 | 73-2231-4 | #6 Internal Lockwasher (4 req'd.) |
| 49 | B-36.251 | Record/Playback Head (For Model R-804) |
| | B-36.254 | Record/Playback Head (For Model R-806) |
| 50 | B-35.1383-1 | Record Head Mtg. Bracket Ass'y. |
| 51 | B-19.1689 | Tape Guide Plate (For Model R-804) |
| | B-19.1690 | Tape Guide Plate (For Model R-806) |
| 52 | 57-1C-603-1 | #6-32 x 3/16" Phillips Head Screw (2 req'd.) |
| 53 | 57-3698-0 | #8-32 x 3/16" Bristol Head Set Screw |
| 54 | B-36.264 | Erase Head |
| 55 | B-32.300 | Left Tape Guide |
| 56 | B-35.1383-2 | Erase Head Mtg. Bracket Ass'y. |
| 57 | B-33.325-1 | Solder Lug |
| 58 | 48-410-1 | #6-32 Hex Nut |
| 59 | B-35.1382-1 | Head Mounting Plate Ass'y. |
| 60 | 57-1C-602-1 | #6-32 x 1/8" Phillips Head Screw |
| 61 | 57-1C-803-1 | #8-32 x 3/16" Phillips Head Screw |
| 62 | B-35.1386-1 | Pressure Pad and Spring Assembly |
| 62A | B-31.444 | Pressure Pad (2 req'd.) |
| 63 | B-19.1694-1 | Cam Stop Adjusting Plate Spring |
| 64 | B-31.338 | |
| 65 | B-19.1647-1 | Pressure Pad Hinge Mtg. Bracket |
| 66 | B-19.1648-1 | Pressure Pad Lever |
| 67 | 73-2231-4 | #6 Internal Lockwasher (2 req'd.) |
| 68 | 57-1C-603-1 | #6-32 x 3/16" Phillips Head Screw (2 req'd.) |
| 69 | 73-2241-74F | Flat Steel Washer |
| 70 | 73-2231-4 | #8 Internal Lockwasher |
| 71 | 57-7C-804-1 | #8-32 x 7/16" Phillips Head Screw |
| 72 | 48-410-1 | #6-32 Hex Nut |
| 73 | 57-6C-606-1 | #6-32 x 3/8" Phillips Head Screw |
| 74 | C-19.1661 | Function Shift Cam |
| 75 | B-32.460-1 | Cam Follower Pin |
| 76 | 57-3698-0 | #8-32 x 3/16" Bristol Head Set Screw |
| 77 | 73-2243-75 | Brass Washer |
| 78 | B-31.494 | Linkage Arm |
| 79 | 57-1C-803-1 | Shouldered Washer |
| 80 | B-19.1642-1 | Cam Follower Link(Short) |
| 81 | 73-2243-75 | Brass Washer (3 req'd.) |
| 82 | B-32.471-1 | Cam Follower |
| 83 | B-31.473 | Cam Follower Spring |
| 84 | B-19.1641-1 | Cam Follower Link (Long) |

| Ref. No. | Part No. | Description |
|---|---|---|
| 85 | C-33.418-3 | 3/16" E Ring |
| 86 | B-32.476-1 | Shouldered Washer |
| 87 | 57-1C-603-1 | #6-32 x 3/16" Phillips Head Screw |
| 88 | 57-6C-406-5 | #4-40 x 3/8" Phillips Head Screw |
| 89 | B-32.480-1 | Spacer |
| 90 | B-32.373 | Record Lock Post |
| 91 | B-19.1664-1 | Record Lock Lever |
| 92 | 48-1C-9-1 | #4-40 Hex Nut |
| 93 | 44-122-6 | Terminal Lug |
| 94 | 48-410-1 | #6-32 Hex Nut |
| 95 | B-31.338 | Record Lock Lever Spring |
| 96 | 73-2340-1 | Linen Washer (2 req'd.) |
| 97 | C-35.1050-1 | Brake Drum Assembly |
| 98 | 57-3698-0 | #8-32 x 3/16" Bristol Head Set Screw |

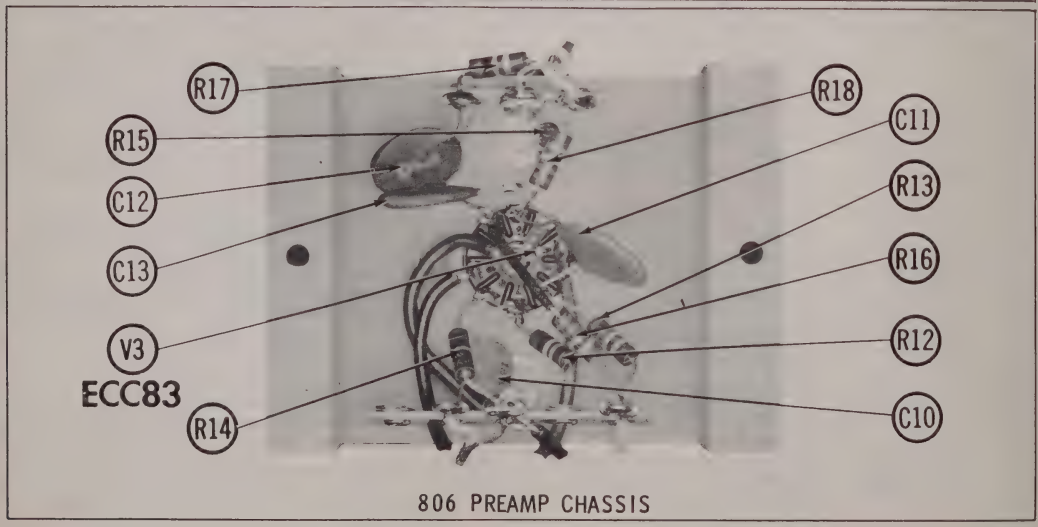
| Ref No. | Part No. | Description |
|---|---|---|
| 99 | B-33.627 | Fastex Plastic Grommet (2 req'd.) |
| 100 | B-19.1697 | Brake Slide Plate Mtg. Brkt. (2 req'd.) |
| 101 | D-19.1643 | Drive Mounting Plate |
| 102 | 48-2219-1 | #6-32 Keps Hex Nut (4 req'd.) |
| 103 | B-28.186 | Rubber Shock Mount (3 req'd.) |
| 104 | B-35.1405-1 | Brake Slide Plate Assembly |
| 104A | B-31.492-2 | Felt Brake Pad (Long) |
| 104B | B-31.492-1 | Felt Brake Pad (Short) |
| 105 | B-32.479-1 | Shouldered Washer (2 req'd.) |
| 106 | 44-122-8 | #8 Internal Locking Terminal |
| 107 | 57-6C-806-1 | #8-32 x 3/8" Phillips Head Screw (2 req'd.) |
| 108 | B-31.338 | Brake Return Spring |
| 109 | C-36.267 | Motor |
| 110 | B-19.1645 | Motor Support Bracket |

* Idler Wheel WALSCO Part No. 1430

* Pinch Roller WALSCO Part No. 1457




804, 806 AMP CHASSIS-BOTTOM VIEW




806 PREAMP CHASSIS

# 804, 806 AMP PARTS LIST AND DESCRIPTIONS

## TUBES

| • GENERAL ELECTRIC • | RAYTHEON • | SYLVANIA • |
|---|---|---|

| ITEM No. | USE | TYPE |
|---|---|---|
| V1<br>V2 | Channel 1 AF Amp.<br>Channel 1 AF Amp. - Cathode Follower - Channel 1 Output | 12AX7/ECC83<br>ECL82/6BM8 |
| V3 | Channel 2 AF Amp. | ECC83/12AX7 |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA RECORDIO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 50 | 150 | B-5.482-1 | PR4-450 | BBRQ55515Q | WQ250 | CDBQ-1001 | TVAS-4525 * | |
| B | 50 | 150 | | | | | | | |
| C | 50 | 150 | | | | | | | |
| D | 20 | 25 | | | | | | | |
| C2 | 16 | 150 | C-5.483-1 | PRS1430 | BBR16-150 | TC44 | TD-16-150 | TVA-1409 | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C3 | 100000 10V | | | UK10-104 | H-05P10 | 1DP-2-104 | TA-010 | HY-320 |
| C4 | 470 10% | | DI-470 | DD-471 | 5R5T47 | CCD-471 | GP347 | 10TS-T47 |
| C5 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C6 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C7 | 470 10% | | DI-470 | DD-471 | 5R5T47 | CCD-471 | GP347 | 10TS-T47 |
| C8 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C9 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C10 | 100000 10V | | | UK10-104 | H-05P10 | 1DP-2-104 | TA-010 | HY-320 |
| C11 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C12 | 20000 | | BPD-02 | DD-203 | BYB6S2 | CCD-203 | B-120 | 5HK-S20 |
| C13 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA RECORDIO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | C-8.227-15 | B-70-S | A47-1meg-Z | Q13-137 | U53 | Volume |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | SWE-12 | 76-1 | US-26 | Power Off-On |

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R2 | 470K | | | |
| R3 | 10meg | | | |
| R4 | 4.7meg | | | |
| R5 | 100K | | | |
| R6 | 220K | | | |
| R7 | 2.2meg | | | |
| R8 | 220K | | | |
| R9 | 100K | | | |
| R10 | 470K | | | |
| R11 | 330Ω 1W | | | |
| R12 | 100K | | | |
| R13 | 220K | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R14 | 1500Ω | | | |
| R15 | 2.2meg | | | |
| R16 | 220K | | | |
| R17 | 10K | | | |
| R18 | 220K | | | |
| R19 | 10K | | | |
| R20 | 1meg | | | |
| R21 | 10K 5W | PW5-10K | 5W-SQ-10K | |
| R22 | 68K | | | |
| R23 | 1000Ω | | | |
| R24 | 220Ω 1W | | | |
| R25 | 3.3Ω | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | REPLACEMENT DATA RECORDIO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 117V Ⓐ .23A | 130V Ⓐ .050A DC | 6.3V Ⓐ 1.3A | C-9-310 | P-3045① | PA8421① | 26R38① | | ① Drill New Mounting Hole(s). |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA RECORDIO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T2 | 6100Ω | 3-4Ω | B-9.282-4 | A-2930 | A-3850 | 24S51 | S-49X | |

## SPEAKER

| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA RECORDIO PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 4" | PM | 6-8Ω | 30.353-2* | 4A07Z8 | * Model 806. Alternate Part #C-30.352-2. |
| SP2 | 4" | PM | 6-8Ω | † | 4A07Z8 | † Model SA-804 |
| | 4" | PM | 3-4Ω | | | |

## POWER RECTIFIERS

| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA RECORDIO PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M1 | .050A | B-22.103 | 1N1763 | 2F4 | SR200 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | RECORDIO PART No. | NOTES |
|---|---|---|---|
| M2 | Switch | | Record-Play (Slide Type, DPDT) |
| M3 | Switch | | Speaker (Slide Type, SPST) |

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

# SA–807 PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | • GENERAL ELECTRIC • RAYTHEON • SYLVANIA • TYPE |
|---|---|---|
| V4 | Channel 2 AF Amp. - Channel 2 Output | ECL82/6BM8 |

| ITEM No. | USE | TYPE |
|---|---|---|
| | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA RECORDIO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C14A | 50 | 150 | B-5.482-1 | PR4-450 | BBRQ55515C | WQ250 | CDBQ-1001 | TVAS-4525* | |
| B | 50 | 150 | | | | | | | |
| C | 50 | 150 | | | | | | | |
| D | 20 | 25 | | | | | | | |

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C15 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |
| C16 | 10000 | | BPD-01 | DD-103 | BYA10S1 | CCD-103 | B-110 | 5HK-S10 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA RECORDIO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R26A | 1meg | ½ | C-8.227-15 | B-70-S | A47-1meg-Z | Q13-137 | U53 | Volume |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | SWE-12 | 76-1 | US-26 | Power Off-On |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R27 | 10meg | | | |
| R28 | 100K | | | |
| R29 | 330Ω | | | |
| R30 | 470K | | | |
| R31 | 330Ω 1W | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R32 | 3300Ω | | | |
| R33 | 1000Ω | | | |
| R34 | 220Ω 1W | | | |
| R35 | 100K | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | REPLACEMENT DATA RECORDIO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T3 | 117V@ .22A | 130V@ .045A DC | 6.3V@ .75A | C-9,310 | P.3045① | PA-8421 ① | 26R38① | | ① Drill New Mounting Hole(s) |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA RECORDIO PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T4 | 6100Ω | 3-4Ω | B-9,282-4 | A-2930 | A-3850 | 24S51 | S-49X | |

## SPEAKER

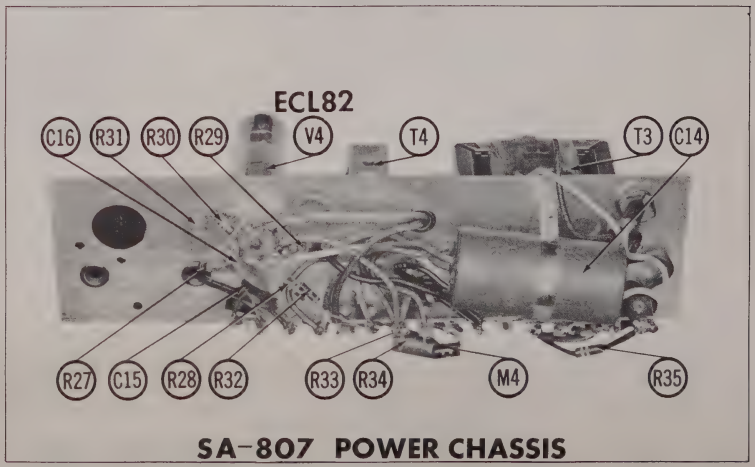
| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA RECORDIO PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP3 | 4" | PM | 6-8Ω | 30.353-2* | 4A07Z8 | * Alternate Part #C-30.352-2. Part #C-35.1430-1 includes speakers and mounting panel. |
| SP4 | 4" | PM | 6-8Ω | | 4A07Z8 | |

## POWER RECTIFIERS

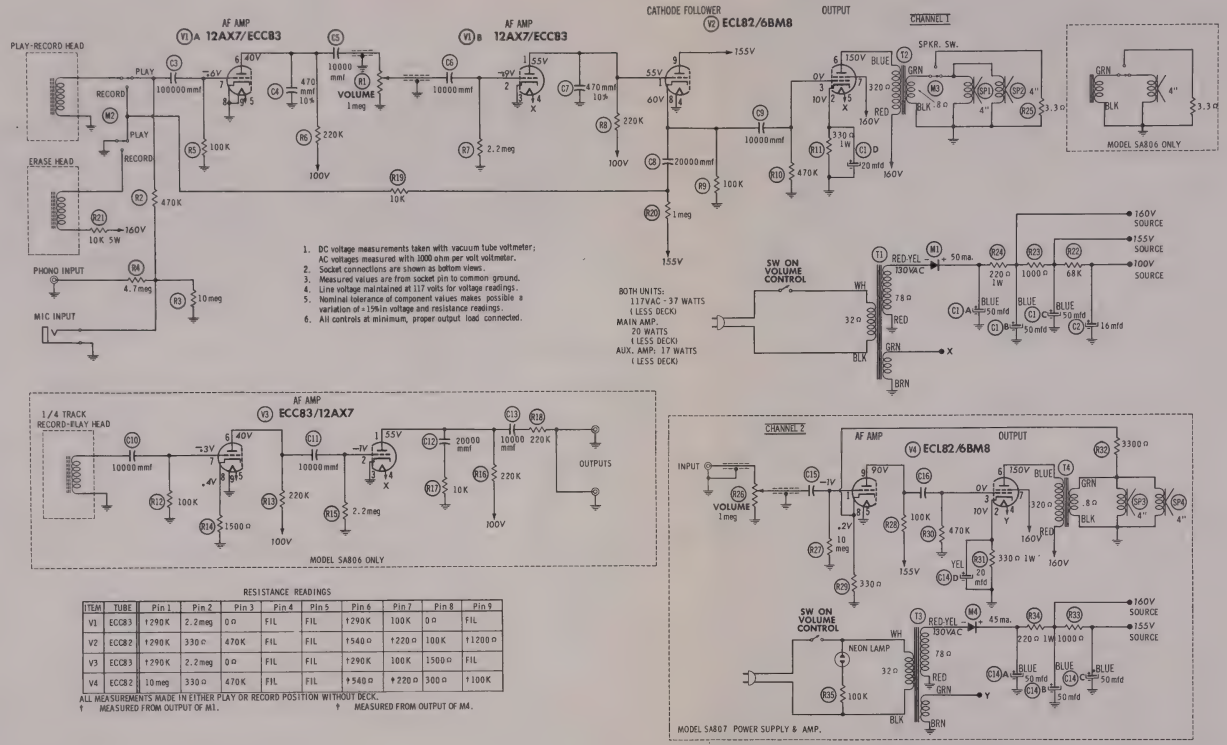
| ITEM No. | RATING CURRENT (Measured) | REPLACEMENT DATA RECORDIO PART No. | RCA PART No. | SARKES TARZIAN PART No. | SYLVANIA PART No. | NOTES |
|---|---|---|---|---|---|---|
| M4 | .045A | B-22,103 | 1N1763 | 2F4 | SR200 | |

## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |




SA–807 POWER CHASSIS




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | ECC83 | †290K | 2.2meg | 0Ω | FIL | FIL | †290K | 100K | 0Ω | FIL |
| V2 | ECC82 | †290K | 330Ω | 470K | FIL | FIL | †540Ω | †220Ω | 100K | †1200Ω |
| V3 | ECC83 | †290K | 2.2meg | 0Ω | FIL | FIL | †290K | 100K | 1500Ω | FIL |
| V4 | ECC82 | 10meg | 330Ω | 470K | FIL | FIL | †540Ω | †220Ω | 300Ω | †100K |

ALL MEASUREMENTS MADE IN EITHER PLAY OR RECORD POSITION WITHOUT DECK.
† MEASURED FROM OUTPUT OF M1. † MEASURED FROM OUTPUT OF M4.

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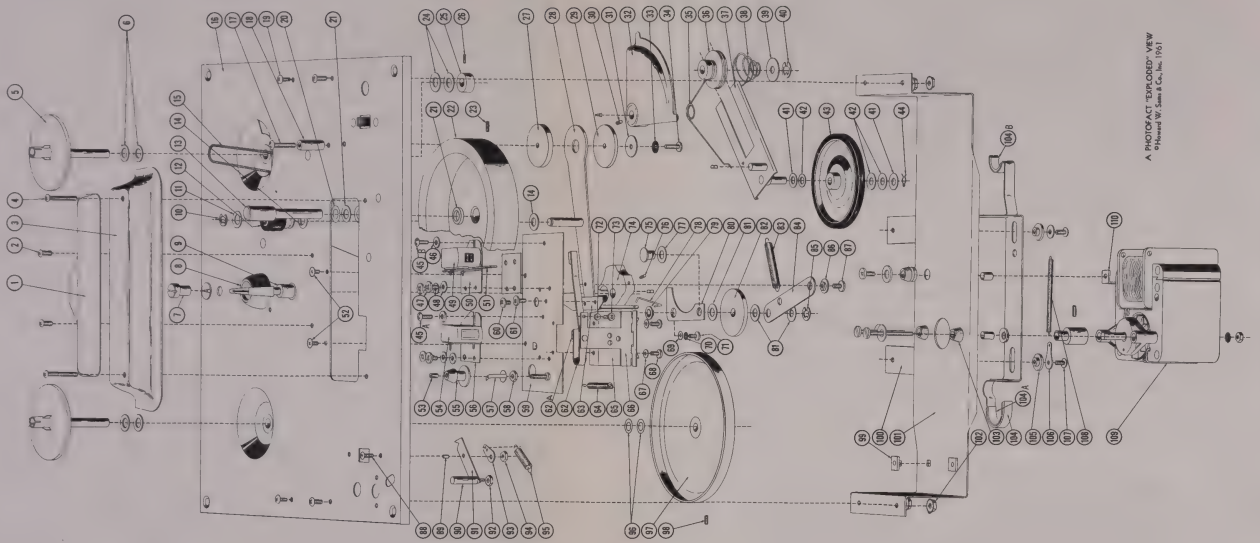
**RECORDIO MODELS 804, 806, SA-807**




EXPLODED VIEW OF MECHANISM

PHOTOFACT® Folder

# SILVERTONE MODEL 9614 (Ch. 450.10100)

SILVERTONE MODEL
9614 (Ch. 450.10100)

SILVERTONE MODEL
9614 (Ch. 450.10100)

| | |
|---|---|
| TRADE NAME | Silvertone Model 9614 (Ch. 450.10100) |
| SUPPLIER | Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois |
| TYPE SET | AC Operated 4 Tube Reverberation Amplifier |
| POWER SUPPLY | 105 — 125 Volts AC, 60 Cycles RATING 50 Watts, .5 Amp. @117 Volts AC |

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KZ869



SET 548 FOLDER 13

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •) |
|---|---|---|
| V1 | AF Amplifier | 12BH7A |
| V2 | AF Amplifier | 7687 (6GH8) * |
| V3 | Output | 6V6GT |
| V4 | Rectifier | 5Y3GT |

* Alternate

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA Silvertone PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ▬40 | 350 | 110263-1 | AFH4-06-40 | D0054 | FP421.9 | TMQ-4394 | TVL-4674 | |
| B | ■50 | 300 | | | | | | | |
| C | ▲20 | 250 | | | | | | | |
| D | 20 | 25 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C3 | .047 200V | | P288N-047 | DD-503 | CUB2S47 | 4DP-3-473 | GEM-4147 | 2TM-S47 |
| C4 | .25 400V | | P488N-25 | | CUB4P25 | 4PP-5-254 | GEM-4025 | 4TM-P25 |
| C5 | .015 400V | | P488N-015 | DD-153 | CUB6S15 | 4DP-1-153 | GEM-4115 | 4TM-S15 |
| C6 | .015 400V | | P488N-015 | DD-153 | CUB6S15 | 4DP-1-153 | GEM-4115 | 4TM-S15 |
| C7 | .015 400V | | P488N-015 | DD-153 | CUB6S15 | 4DP-1-153 | GEM-4115 | 4TM-S15 |
| C8 | 470 | | 1468-00047 | DD-471 | 5W5T47 | CM-19B-471M | MCJ244 | 1FM-347 |
| C9 | .25 400V | | P488N-25 | | CUB4P25 | 4DP-5-254 | GEM-4025 | 4TM-P25 |
| C10 | .015 400V | | P488N-015 | DD-153 | CUB6S15 | 4DP-1-153 | GEM-4115 | 4TM-S15 |
| C11 | .005 600V | | P688N-005 | D6-502 | CUB6P5 | 6DP-1-502 | GEM-625 | 6TM-D50 |
| C12 | .25 400V | | P488N-25 | | CUB4P25 | 4DP-1-153 | GEM-4025 | 4TM-P25 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA Silvertone PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1meg | ½ | 110269-1 | BPL-70 | C47S-1meg-S | B11-137 * | PP16L | Volume |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| C | Switch | | | Not Req. | Not Req. | SK7 | Not Req. | Push-Pull Off-On |

* Factory Assembled Part #PPQ11-137 (SK7).

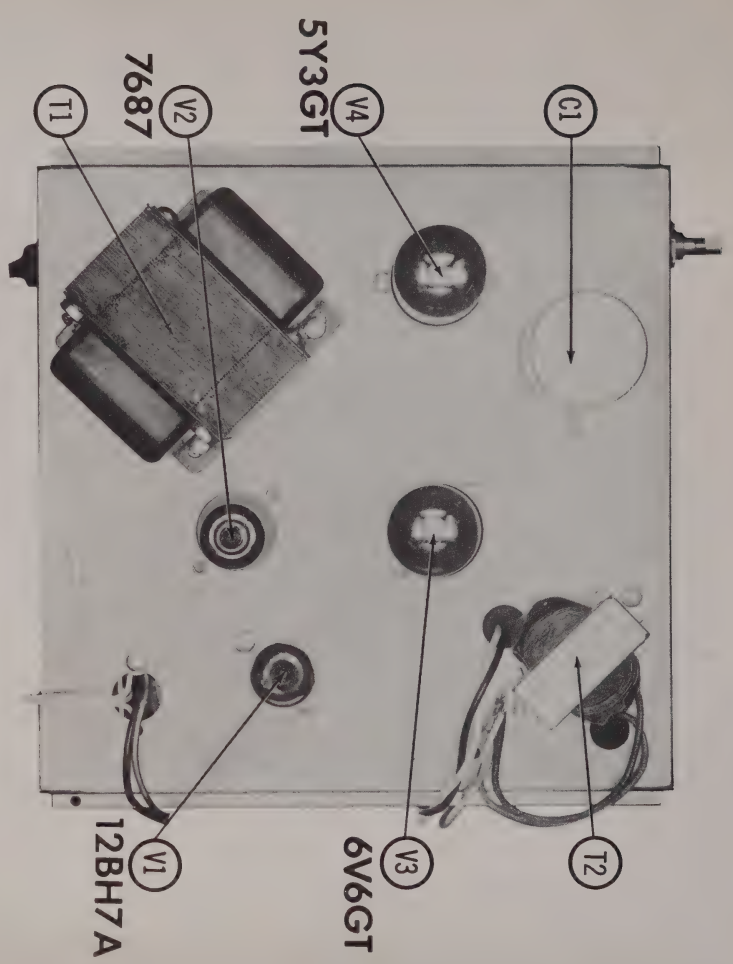
## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R2 | 2.7meg | | | |
| R3 | 220Ω | | | |
| R4 | 2.7meg | | | |
| R5 | 220Ω | | | |
| R6 | 6000Ω 3W | PW3-6000 | 3W-SQ-6000 | |
| R7 | 2.7meg | | | |
| R8 | 220K | | | |
| R9 | 470Ω | | | |

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R10 | 10meg | | | |
| R11 | 100K | | | |
| R12 | 470K | | | |
| R13 | 470K | | | |
| R14 | 270Ω 1W | | | |
| R15 | 47K | | | |
| R16 | 1000Ω 1W | | | |
| R17 | 1000Ω 1W | | | |

# CHASSIS—TOP VIEW



## PARTS LIST AND DESCRIPTIONS (Continued)

### TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | Silvertone PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 117V@ .5A | 500VCT @ .060A DC | 5V @ 2A | 181275-1 | P-2893 ① ② | PC8403 ② | 24R09 ① ② | R-108A ② | ① Drill New Mounting Hole(s). ② Tape C.T. On 6.3V Winding |
| | SEC. 3 | SEC. 4 | SEC. 5 | | | | | | |
| | 6.3V@ 1.8A | | | | | | | | |

### TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | Silvertone PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 6000Ω | 6-8Ω | 181276-1 | A-2901 ① | A-3850 | 22S86 | S-63X | ① Drill New Mounting Hole(s). |

### SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | Silvertone PART No. | QUAM PART No. | |
| SP1 | 8" | PM | 6-8Ω | 132668-1 | 8A21PA | |

### MISCELLANEOUS

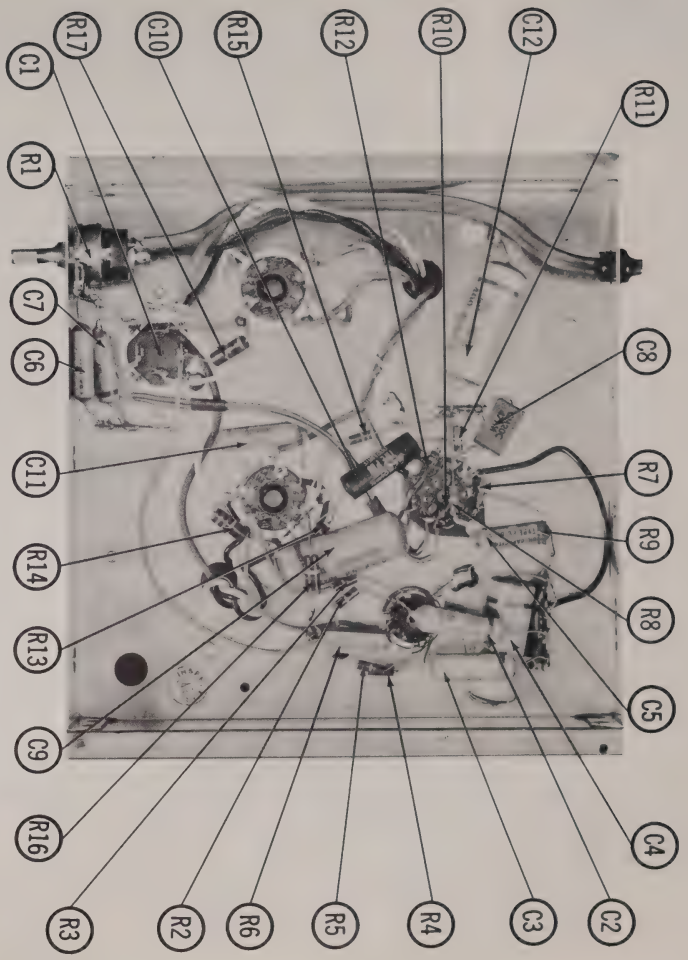
| ITEM No. | PART NAME | Silvertone PART No. | NOTES |
|---|---|---|---|
| M1 | Reverberator | 110267-1 | |

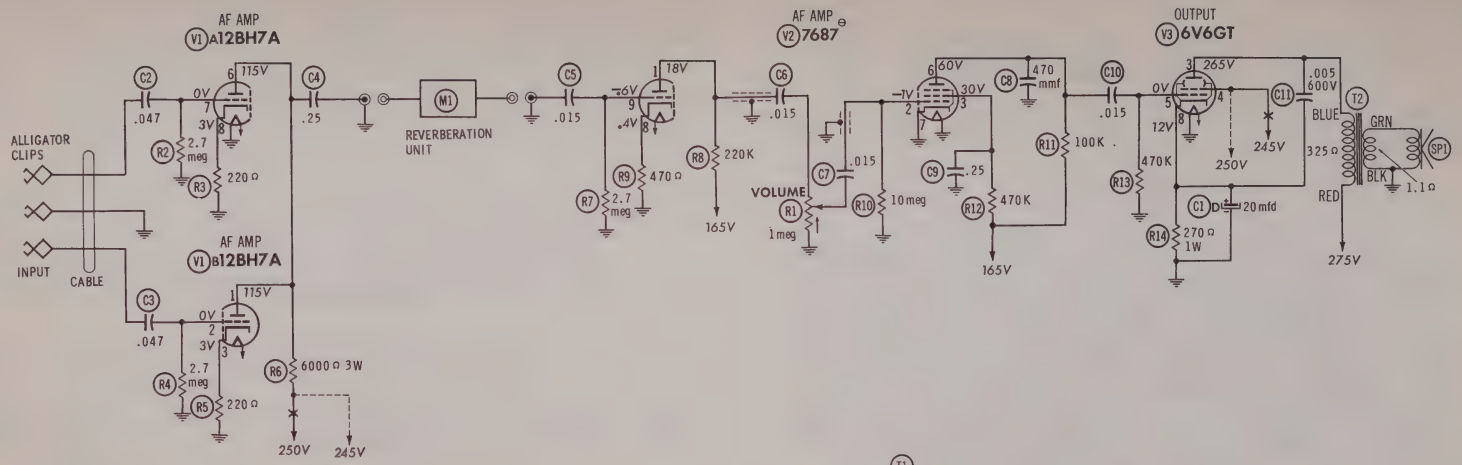
### WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

## CHASSIS—BOTTOM VIEW

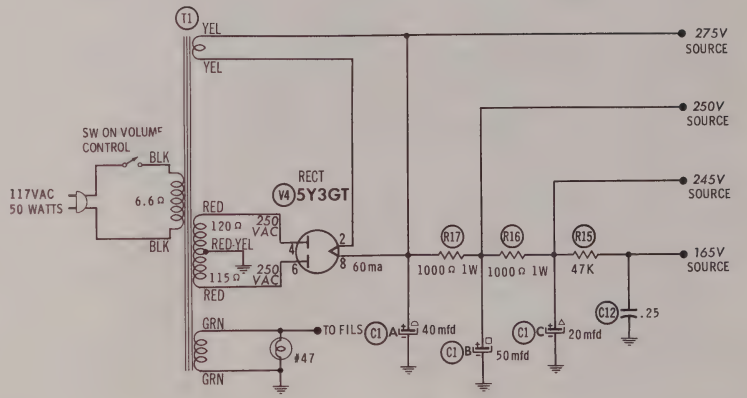





RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12BH7A | †7000 Ω | 2.7 meg | 220 Ω | FIL | FIL | †7000 Ω | 2.7 meg | 220 Ω | FIL |
| V2 | 7687 | †270 K | 10 meg | †520 K | FIL | FIL | †150 K | 0 Ω | 470 Ω | 2.7 meg |
| V3 | 6V6GT | NC | FIL | †325 Ω | †2000 Ω | 470 K | NC | FIL | 270 Ω | |
| V4 | 5Y3GT | NC | ¶ | NC | 120 Ω | NC | 115 Ω | NC | ¶ | |

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V4. NC NO CONNECTION




⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum; proper output load connected.

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**SILVERTONE MODEL 9614 (Ch. 450.10100)**

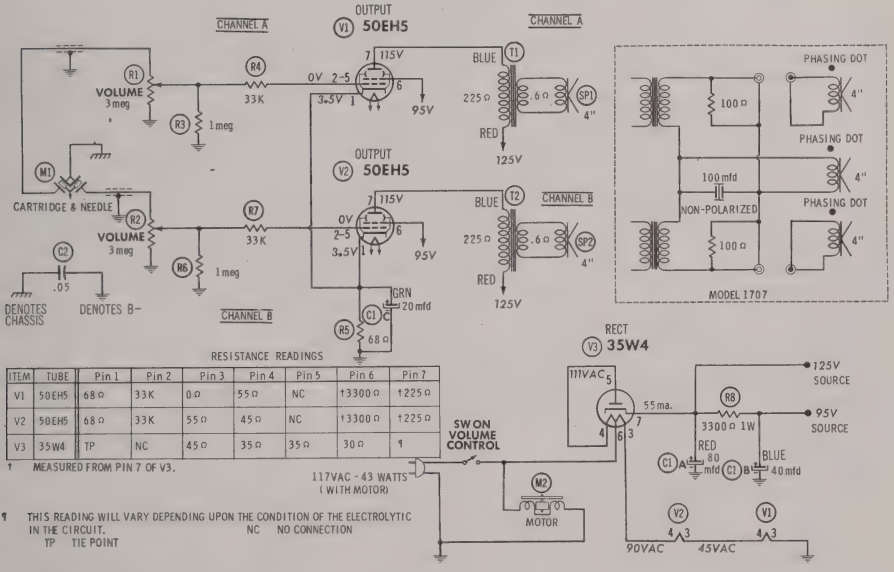
PHOTOFACT® Folder

# SYMPHONIC MODELS 1704, 1707

SYMPHONIC
MODELS 1704, 1707

MODEL 1704

| | |
|---|---|
| TRADE NAME | Symphonic Models 1704, 1707 |
| MANUFACTURER | Symphonic Radio & Electronic Corp., 235 Jersey Ave., New Brunswick, N. J. |
| TYPE SET | AC Operated 3 Tube Stereo Phono Amplifier With 4 Speed Manual Record Player |
| POWER SUPPLY | 110 — 120 Volts AC, 60 Cycles RATING 43 Watts, .45 Amp. @117 Volts AC |




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 50EH5 | 68 Ω | 33K | 0 Ω | 55 Ω | NC | †3300 Ω | †225 Ω |
| V2 | 50EH5 | 68 Ω | 33K | 55 Ω | 45 Ω | NC | †3300 Ω | †225 Ω |
| V3 | 35W4 | TP | NC | 45 Ω | 35 Ω | 35 Ω | 30 Ω | ¶ |

† MEASURED FROM PIN 7 OF V3.

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.

NC NO CONNECTION

TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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SYMPHONIC
MODELS 1704, 1707

SET 548 FOLDER 14

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | GENERAL ELECTRIC USE | GENERAL ELECTRIC TYPE | ITEM No. | RAYTHEON USE | RAYTHEON TYPE | SYLVANIA TYPE |
|---|---|---|---|---|---|---|
| V1 | Channel A Output | 50EH5 | V3 | Rectifier | 35W4 | |
| V2 | Channel B Output | 50EH5 | | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA Symphonic PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 80 | 150 | CE-140 | PRS4650 | BBRT8415C | TCT3117 | TDLT-7 | TVA-3437,1 | |
| B | 40 | 150 | | | | | | | |
| C | 20 | 25 | | | | | | | |

## FIXED CAPACITORS

| ITEM No. | RATING | REMARKS | REPLACEMENT DATA AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ELMENCO PART No. | MALLORY PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|
| C2 | .05 400V | | BPD-05 | DD-503 | CUB4S5 | 4DP-3-503 | GEM-415 | 4TM-S50 |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA Symphonic PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | CTS-IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 3meg | ½ | VC-308 | B-85 | A47-3meg-Z | Q13-140 | U57 | Volume A |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R2A | 3meg | ½ | VC-317 | B-85 | A47-3meg-Z | Q13-140 | U57 | Volume B |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| C | Switch | | | KR-1 | SWE-12 | 76-1 | US-26 | Power Off-On |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | REPLACEMENT DATA IRC PART No. | WORKMAN TV PART No. | REMARKS |
|---|---|---|---|---|
| R3 | 1meg | | | |
| R4 | 33K | | | |
| R5 | 68Ω | | | |
| R6 | 1meg | | | |
| R7 | 33K | | | |
| R8 | 3300Ω 1W | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA SYMPHONIC PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|
| T1 | 2600Ω | 3-4Ω | TR-170 | A-3025 | A-3332 | 26S58 | S-12X | |
| T2 | 2600Ω | 3-4Ω | TR-170 | A-3025 | A-3332 | 26S58 | S-12X | |

## SPEAKER

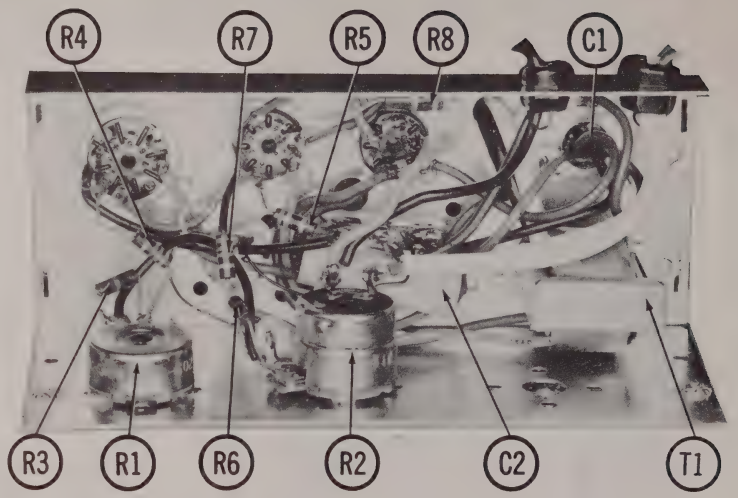
| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA Symphonic PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 4" | PM | 3-4Ω | SP402 * | 4A07 | * Used in Model 1704 |
| SP2 | 4" | PM | 3-4Ω | SP402 * | 4A07 | † Used in Model 1707 |
| | 4" | PM | 3-4Ω | SP401 † | 4A1 | |

## PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

| ITEM No. | Symphonic PART No. CARTRIDGE | Symphonic PART No. NEEDLE* | ASTATIC PART No. CARTRIDGE | ASTATIC PART No. NEEDLE* | ELECTRO-VOICE PART No. CARTRIDGE | ELECTRO-VOICE PART No. NEEDLE* | SONOTONE PART No. CARTRIDGE | SONOTONE PART No. NEEDLE* | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| M1 | | | 70TS KR-74-TS† | N8-7 * N8-3 * | 96T | Not Req. | 12THA-S T8C1-12THA-S† | N-12THA-S * | † Includes Tone Arm |

# CHASSIS—BOTTOM VIEW




## MISCELLANEOUS

| ITEM No. | PART NAME | Symphonic PART No. | NOTES |
|---|---|---|---|
| M2 | Motor | MO-117 | 4 Speed, 117VAC, GL Model 1704, Model 1707 |
| | Motor | MO-116 | 4 Speed, 117VAC, Alliance, Model 1704, Model 1707 |
| | Idler Wheel | | WALSCO Part No. 1472-01 |

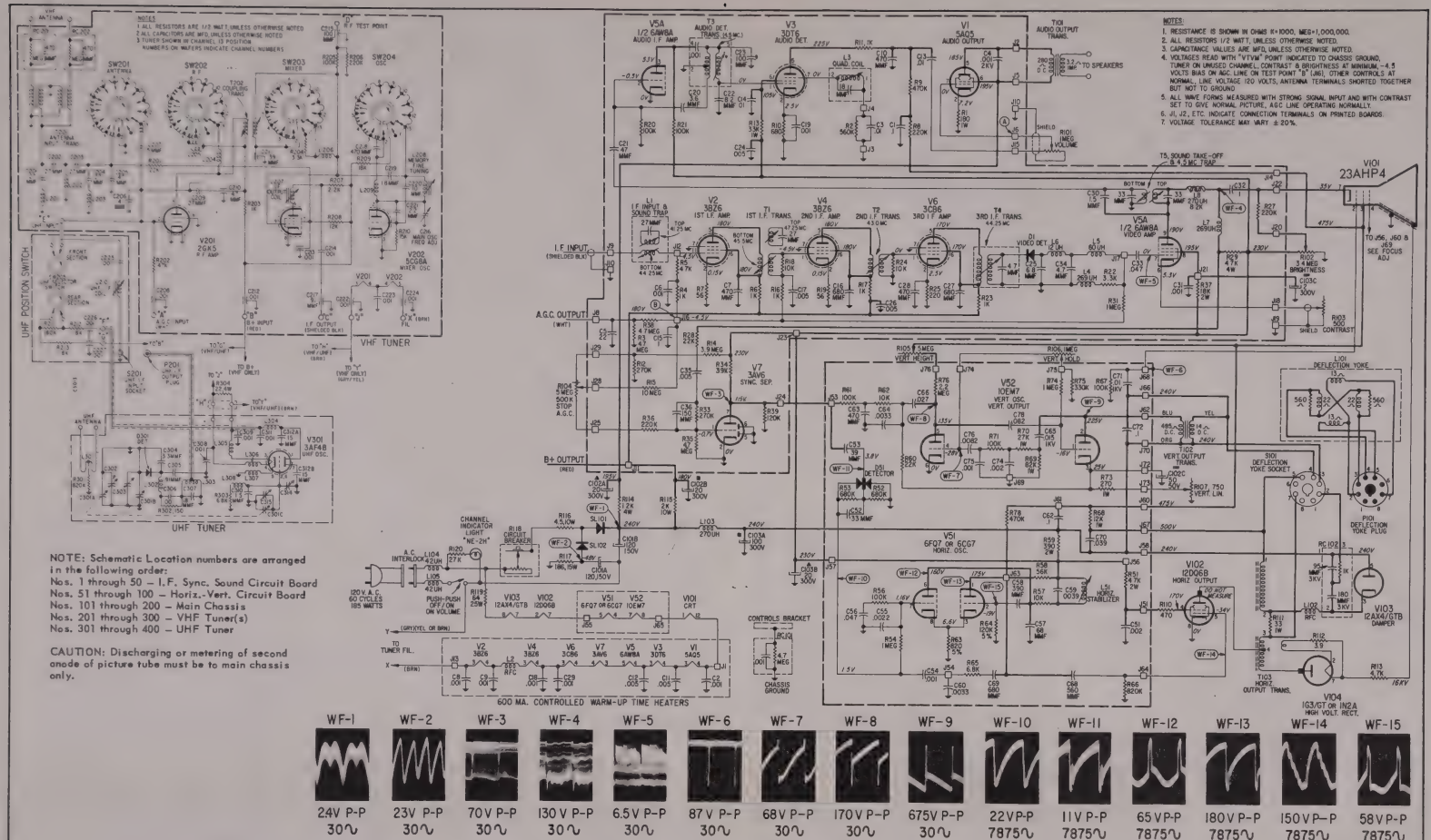
## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | KN143 | Grey |
| | KN366 | Tan |

## WIRING DATA

| | |
|---|---|
| General-use Unshielded Hook-up Wire | Use BELDEN No. 8530 (Solid) Available in Ten Colors<br>8524 (Stranded) Available in Ten Colors |
| Power Cord | Use BELDEN No. 1765-B (6 Ft. Length)<br>1725-K (7½ Ft. Length) |
| Low-Loss Shielded Lead (Interconnecting) | Use BELDEN No. 8401 |
| Phono Pick-up Arm Cable | Use BELDEN No. 8430 (Two Conductor - Twisted) |


NOTES:
1. RESISTANCE IS SHOWN IN OHMS K=1000, MEG=1,000,000.
2. ALL RESISTORS 1/2 WATT, UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE MFD. UNLESS OTHERWISE NOTED.
4. VOLTAGES READ WITH "VTVM" POINT INDICATED TO CHASSIS GROUND, TUNER ON UNUSED CHANNEL, CONTRAST & BRIGHTNESS AT MINIMUM, - 4.5 VOLTS BIAS ON AGC LINE ON TEST POINT "B" (J46), OTHER CONTROLS AT NORMAL, LINE VOLTAGE 120 VOLTS, ANTENNA TERMINALS SHORTED TOGETHER BUT NOT TO GROUND
5. ALL WAVE FORMS MEASURED WITH STRONG SIGNAL INPUT AND WITH CONTRAST SET TO GIVE NORMAL PICTURE, AGC LINE OPERATING NORMALLY.
6. J1, J2, ETC. INDICATE CONNECTION TERMINALS ON PRINTED BOARDS.
7. VOLTAGE TOLERANCE MAY VARY ± 20%.
V5A 1/2 6AW8A AUDIO I.F. AMP
V3 3DT6 AUDIO DET.
V1 5AQ5 AUDIO OUTPUT
T101 AUDIO OUTPUT TRANS.
TO SPEAKERS
R101 MEG VOLUME
SHIELD
V2 3BZ6 1ST I.F. AMP
V4 3BZ6 2ND I.F. AMP
V6 3CB6 3RD I.F. AMP
T1 1ST I.F. TRANS.
T2 2ND I.F. TRANS.
T3 AUDIO DET. TRANS. (4.5 MC)
T4 3RD I.F. TRANS.
L1 I.F. INPUT & SOUND TRAP
D1 VIDEO DET.
V5A 1/2 6AW8A VIDEO AMP
T5 SOUND TAKE-OFF & 4.5 MC TRAP
V101 23AHP4
TO J56, J60 & J69 SEE FOCUS ADJ
R102 3 MEG BRIGHTNESS
R103 300K SHIELD CONTRAST
I.F. INPUT (SHIELDED BLK)
A.G.C. OUTPUT (WHT)
B+ OUTPUT (RED)
V7 3AV6 SYNC SEP.
R104 5 MEG 500K STOP A.G.C.
R105 5 MEG VERT. HEIGHT
R106 1 MEG VERT. HOLD
V52 10EM7 VERT. OSC. VERT. OUTPUT
D51 DETECTOR
T101 VERT. OUTPUT TRANS.
L101 DEFLECTION YOKE
SI01 DEFLECTION YOKE SOCKET
PI01 DEFLECTION YOKE PLUG
V5I 6FQ7 OR 6CG7 HORIZ. OSC.
V102 12D06B HORIZ. OUTPUT
V103 12AX4/GTB DAMPER
T103 HORIZ. OUTPUT TRANS.
V104 1G3/GT OR 1N2A HIGH VOLT. RECT.
CHANNEL INDICATOR LIGHT "NE-2H"
A.C. INTERLOCK
PUSH-PUSH OFF/ON VOLUME
120 V.A.C. 60 CYCLES 185 WATTS
V103 12AX4/GTB
V102 12D06B
V5I 6FQ7 OR 6CG7
V52 10EM7
V101 CRT
TO TUNER FIL.
600 MA. CONTROLLED WARM-UP TIME HEATERS
CONTROLS BRACKET
CHASSIS GROUND
V201 2GK5
V202 5CG8A MIXER OSC
VHF TUNER
V301 3AF4B UHF OSC.
UHF TUNER
UHF POSITION SWITCH
NOTES
1 ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE NOTED
2 ALL CAPACITORS ARE MFD. UNLESS OTHERWISE NOTED
3 TUNER SHOWN IN CHANNEL 13 POSITION
NUMBERS ON WAFERS INDICATE CHANNEL NUMBERS
R.F. TEST POINT
SW201 ANTENNA
SW202
SW203 MIXER
SW204 OSC
MAIN OSC FREQ ADJ.
FINE TUNING
ANTENNA TRIM
MIXER TRIM
OSC TRIM
R.F. AMP TRIM
A.F.C. INPUT
I.F. OUTPUT (SHIELDED BLK)
B+ INPUT (RED)
TO B+ (VHF ONLY)
TO "V" (VHF/UHF) (BRN)
TO B+ (VHF ONLY) (SUPPLY)
TO "V" (VHF ONLY) (SUPPLY)
TO "V" (VHF/UHF) (BRN)
S201 UHF "V" A.F.C. SOCKET
P201 UHF "V" A.F.C. PLUG
UHF ANTENNA
UHF TRIM
UHF R.F. AMP
UHF MIXER
UHF OSC.
UHF I.F. AMP
UHF I.F. OUTPUT
UHF TUNER

NOTE: Schematic Location numbers are arranged in the following order:
Nos. 1 through 50 — I.F. Sync. Sound Circuit Board
Nos. 51 through 100 — Horiz.-Vert. Circuit Board
Nos. 101 through 200 — Main Chassis
Nos. 201 through 300 — VHF Tuner(s)
Nos. 301 through 400 — UHF Tuner

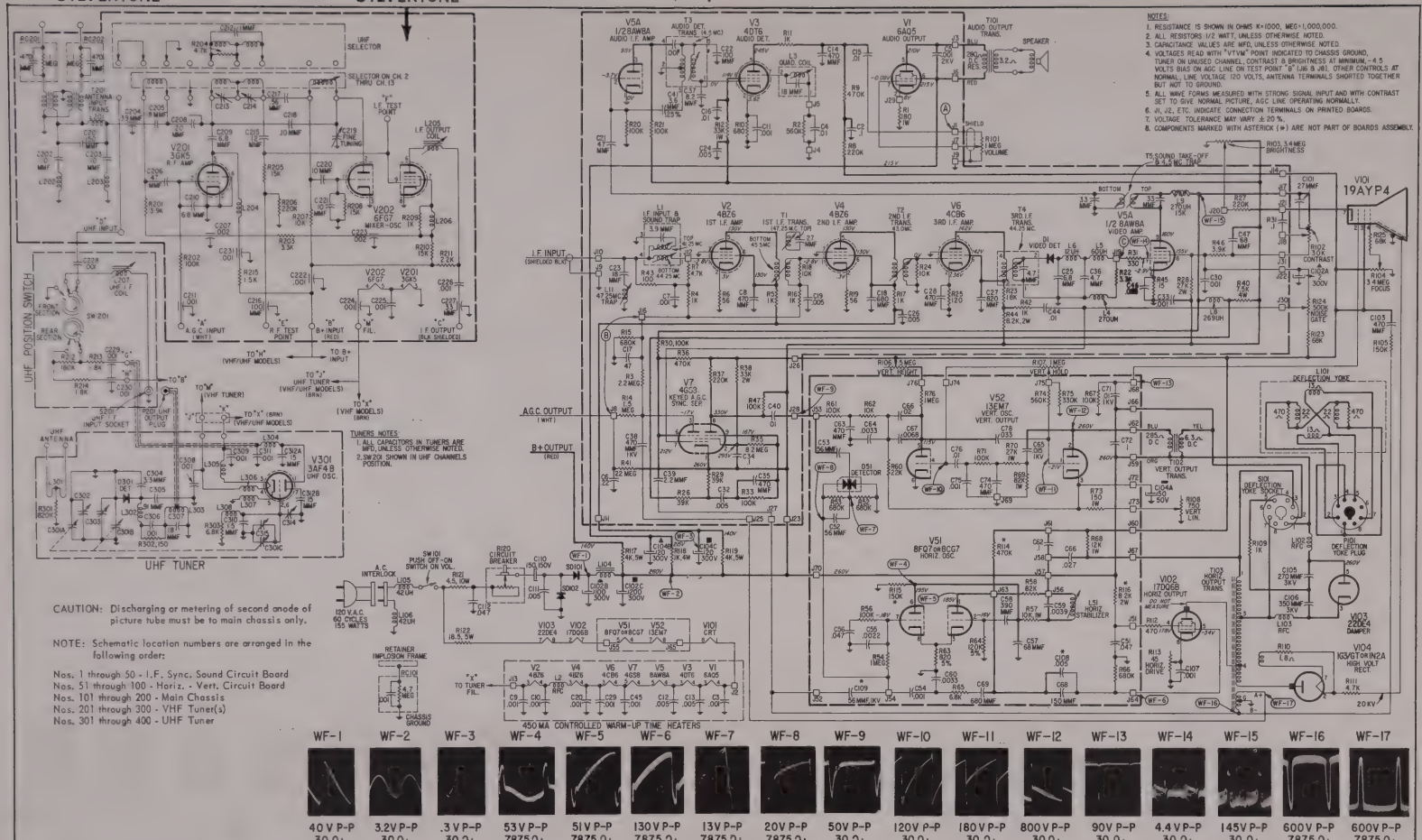
CAUTION: Discharging or metering of second anode of picture tube must be to main chassis only.

| WF-1 | WF-2 | WF-3 | WF-4 | WF-5 | WF-6 | WF-7 | WF-8 | WF-9 | WF-10 | WF-11 | WF-12 | WF-13 | WF-14 | WF-15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24V P-P 30∿ | 23V P-P 30∿ | 70V P-P 30∿ | 130V P-P 30∿ | 6.5V P-P 30∿ | 87V P-P 30∿ | 68V P-P 30∿ | 170V P-P 30∿ | 675V P-P 30∿ | 22VP-P 7875∿ | 11V P-P 7875∿ | 65VP-P 7875∿ | 180V P-P 7875∿ | 150V P-P 7875∿ | 58V P-P 7875∿ |

SILVERTONE MODELS PC-2150, PC-2151, PC-2152, PC-2153, PC-2154, PC-2155, PC-2156, PC-2157, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157 ( CH. 456.51800, 456.51801, 528.51800, 528.51801 )

Schematic Diagram Courtesy of Sears, Roebuck & Company

SILVERTONE


NOTES:
1. RESISTANCE IS SHOWN IN OHMS K=1000, MEG=1,000,000.
2. ALL RESISTORS 1/2 WATT, UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE MFD, UNLESS OTHERWISE NOTED.
4. VOLTAGES READ WITH "VTVM" POINT INDICATED TO CHASSIS GROUND, TUNER ON UNUSED CHANNEL, CONTRAST & BRIGHTNESS AT MINIMUM, - 4.5 VOLTS BIAS ON AGC LINE ON TEST POINT "E" (J8 & J9). OTHER CONTROLS AT NORMAL, LINE VOLTAGE 120 VOLTS, ANTENNA TERMINALS SHORTED TOGETHER BUT NOT TO GROUND.
5. ALL WAVE FORMS MEASURED WITH STRONG SIGNAL INPUT AND WITH CONTRAST SET TO GIVE NORMAL PICTURE, AGC LINE OPERATING NORMALLY.
6. J1, J2, ETC. INDICATE CONNECTION TERMINALS ON PRINTED BOARDS.
7. VOLTAGE TOLERANCE MAY VARY ± 20 %.
8. COMPONENTS MARKED WITH ASTERICK (*) ARE NOT PART OF BOARDS ASSEMBLY.
UHF TUNER
UHF POSITION SWITCH
TUNERS NOTES:
1. ALL CAPACITORS IN TUNERS ARE MFD, UNLESS OTHERWISE NOTED.
2. SW201 SHOWN IN UHF CHANNELS POSITION.
CAUTION: Discharging or metering of second anode of picture tube must be to main chassis only.
NOTE: Schematic location numbers are arranged in the following order:
Nos. 1 through 50 - I.F. Sync. Sound Circuit Board
Nos. 51 through 100 - Horiz. - Vert. Circuit Board
Nos. 101 through 200 - Main Chassis
Nos. 201 through 300 - VHF Tuner(s)
Nos. 301 through 400 - UHF Tuner
450 MA CONTROLLED WARM-UP TIME HEATERS
WF-1
WF-2
WF-3
WF-4
WF-5
WF-6
WF-7
WF-8
WF-9
WF-10
WF-11
WF-12
WF-13
WF-14
WF-15
WF-16
WF-17
40 V P-P 30 ∿
3.2V P-P 30 ∿
.3 V P-P 30 ∿
53 V P-P 7875 ∿
51 V P-P 7875 ∿
130 V P-P 7875 ∿
13 V P-P 7875 ∿
20 V P-P 7875 ∿
50 V P-P 30 ∿
120 V P-P 30 ∿
180 V P-P 30 ∿
800 V P-P 30 ∿
90 V P-P 30 ∿
4.4 V P-P 30 ∿
145 V P-P 30 ∿
600 V P-P 7875 ∿
600 V P-P 7875 ∿

SILVERTONE MODELS PC-21061, PC-21071, 21061, 21071
( CH. 456.52420, 456.52421, 528.52420, 528.52421 )

Schematic Diagram Courtesy of Sears, Roebuck & Company

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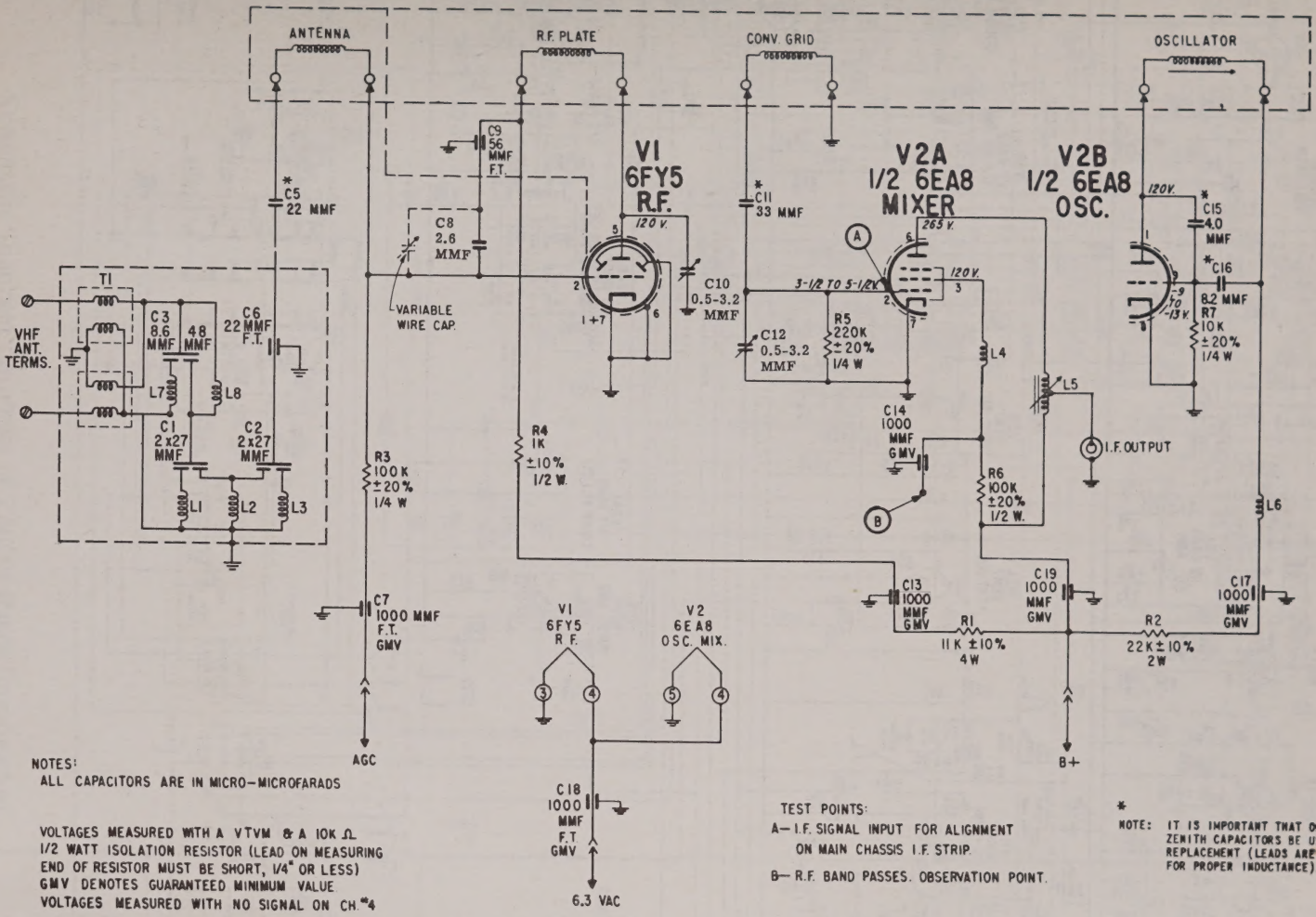


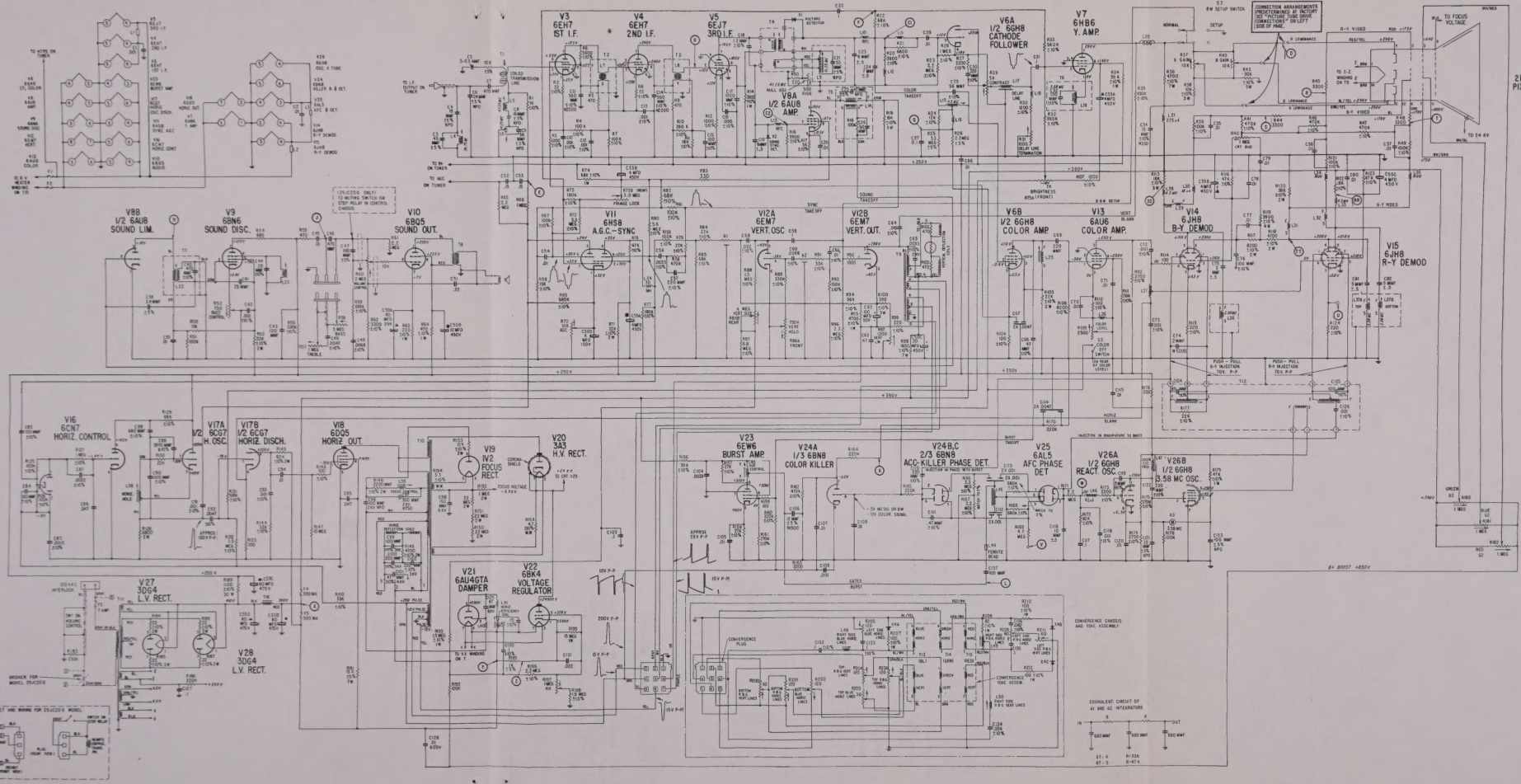

NOTES:
ALL CAPACITORS ARE IN MICRO-MICROFARADS

VOLTAGES MEASURED WITH A VTVM & A 10K Ω
1/2 WATT ISOLATION RESISTOR (LEAD ON MEASURING END OF RESISTOR MUST BE SHORT, 1/4" OR LESS)
GMV DENOTES GUARANTEED MINIMUM VALUE
VOLTAGES MEASURED WITH NO SIGNAL ON CH. #4

DENOTES CHASSIS ⏚

TEST POINTS:
A— I.F. SIGNAL INPUT FOR ALIGNMENT ON MAIN CHASSIS I.F. STRIP.
B— R.F. BAND PASSES. OBSERVATION POINT.

* NOTE: IT IS IMPORTANT THAT ONLY ZENITH CAPACITORS BE USED FOR REPLACEMENT (LEADS ARE PRE-CUT FOR PROPER INDUCTANCE).


V3 6EH7 1ST I.F.
V4 6EH7 2ND I.F.
V5 6EJ7 3RD I.F.
V6A 1/2 6GH8 CATHODE FOLLOWER
V7 6HB6 Y. AMP.
V8A 1/2 6AU8 I/2 6AU8 AMP.
V8B 1/2 6AU8 SOUND LIM.
V9 6BN6 SOUND DISC.
V10 6BQ5 SOUND OUT.
V11 6HS8 A.G.C.-SYNC
V12A 6EM7 VERT. OSC
V12B 6EM7 VERT. OUT.
V6B 1/2 6GH8 COLOR AMP.
V13 6AU6 COLOR AMP.
V14 6JH8 B-Y DEMOD
V15 6JH8 R-Y DEMOD
V16 6CN7 HORIZ. CONTROL
V17A 1/2 6CG7 H. OSC.
V17B 1/2 6CG7 HORIZ. DISCH.
V18 6DQ5 HORIZ. OUT.
V19 IV2 FOCUS RECT.
V20 3A3 H.V. RECT.
V21 6AU4GTA DAMPER
V22 6BK4 VOLTAGE REGULATOR
V23 6EW6 BURST AMP.
V24A 1/3 6BN8 COLOR KILLER
V24B,C 2/3 6BN8 ACC-KILLER PHASE DET.
V25 6AL5 AFC PHASE DET.
V26A 1/2 6GH8 REACT. OSC.
V26B 1/2 6GH8 3.58 MC OSC.
V27 3DG4 L.V. RECT.
V28 3DG4 L.V. RECT.
V29 21FBP22 PIX. TUBE
CONNECTION ARRANGEMENTS PREDETERMINED AT FACTORY SEE "PICTURE TUBE DRIVE CONNECTIONS" ON LEFT SIDE OF PAGE.
TO FOCUS VOLTAGE
TO 24 KV
B+ BOOST +850V
+330V
+250V
CONVERGENCE CHASSIS AND YOKE ASSEMBLY
EQUIVALENT CIRCUIT OF A1 AND A2 INTEGRATORS

ZENITH CHASSIS 29JC20, Q

Schematic Diagram Courtesy of Zenith Radio Corporation